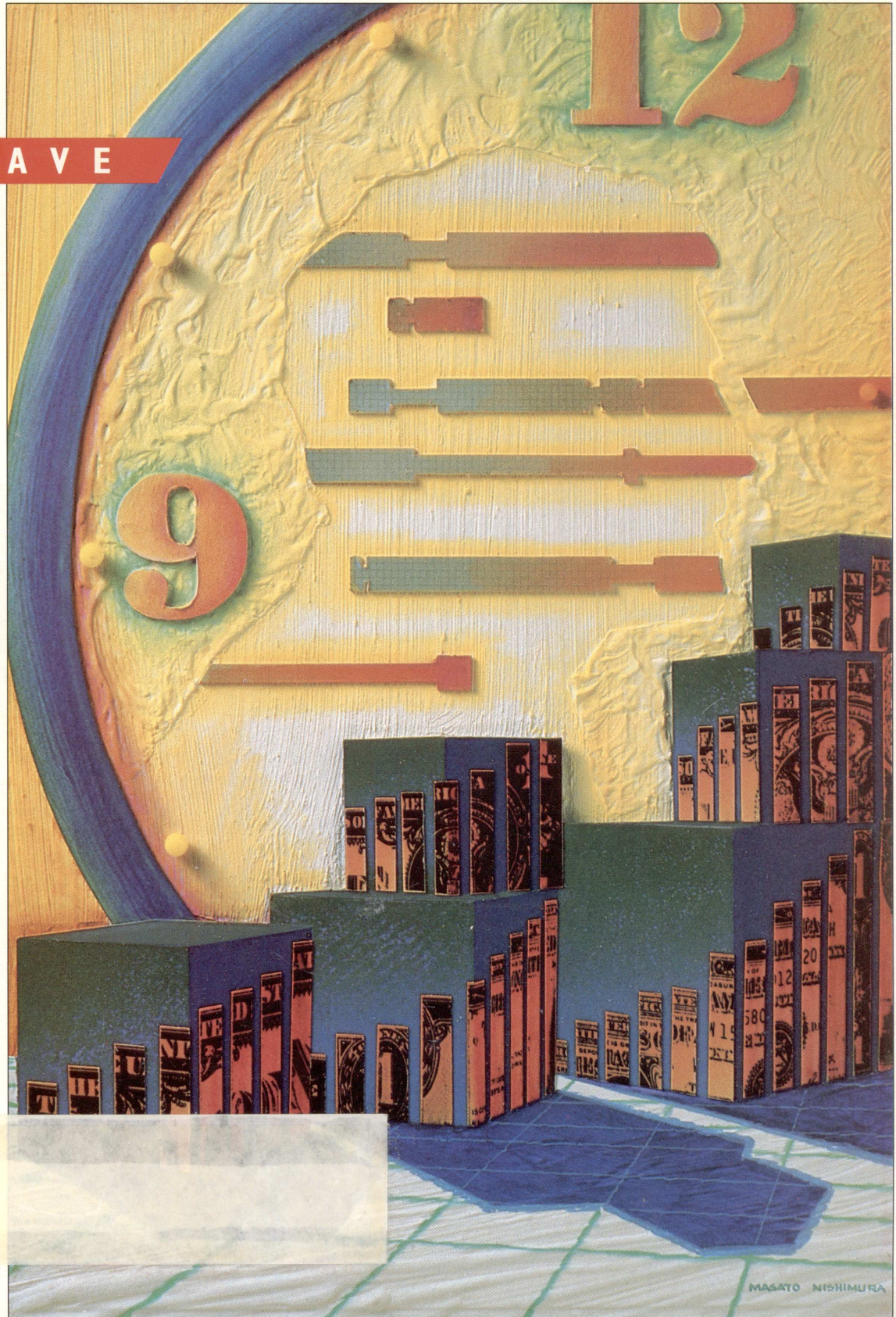


OCTOBER 1991 ▲

Client-Server Computing

- ▶ Accounting Software Vendors Take Stock In Networked Systems
- ▶ HP NewWave Office: The First Step Toward Workflow Automation
- ▶ HP OpenView Puts Information Systems In Perspective
- ▶ PC Integration: When Will The Dream Become A Reality?



MASATO NISHIMURA

WHEN
YOU
NEED
THE
FUTURE...NOW.



At Infotek Systems the future is here. Now. And always has been. Ever since our first enhancement products for Hewlett-Packard computers more than 14 years ago. And we haven't looked back since.

Infotek Systems is the leader in developing and introducing innovative products to the marketplace ahead of the competition. Time and time again. We introduced the first high density 1MB memory board for HP workstations in 1983. And in late 1990 we released a 32MB module for the HP 9000 Series 345/375 and HP/Apollo 400.

We are first in providing you with cutting-edge technology that increases workstation productivity and efficiency. That opens new windows for you. New markets. And new opportunities. Faster.

When it comes to state-of-the-art workstation enhancement products, you need innovation, not imitation.

You need Infotek Systems. Get to know us.

For more information call toll free **1-800-767-1084**. Find out how we can open windows of innovation to enhance your workstations and bring you the future now—when you really need it.

MEMORY FOR YOUR HP APOLLO 700

Infotek continues its innovative ways with four new products:

EM700 memory modules provide users of the new HP 700 Series with a cost-effective alternative to Hewlett-Packard's RAM. Available soon in 16 megabyte module sets, the EM700+16 gives you the memory you need at a price you can live with.

Also on the horizon are memory boards for Apollo DN3500, DN4000 and DN4500 workstations; Digital Audio Tape backup systems; and memory for your LaserJet printer. Call us today for information about our advanced workstation enhancements.

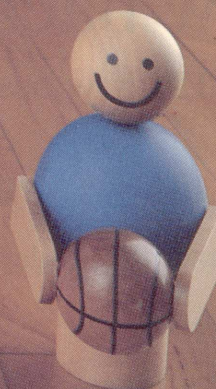


**INFOTEK
SYSTEMS**

"The Enhancement Company"

625 South Lincoln, Suite 204, Steamboat Springs, CO 80487 TEL: 1-800-767-1084; FAX: 303-879-1195

CIRCLE 181 ON READER CARD



NOT IN THE SAME LEAGUE.

Compare any other application development software for Hewlett-Packard systems with PowerHouse® from Cognos® and you'll prove just one thing. Not In The Same League.

Because PowerHouse isn't just a stand-alone tool. It's a complete application development solution, including integrated CASE. It speeds every phase of the development cycle — from analysis and design, through 4GL coding, to maintenance and end-user reporting. Without ever making you resort to a 3GL.

Unlike patchwork solutions, PowerHouse is seamless. It eliminates bottlenecks. Integrates tightly with your MPE/V, MPE/XL and HP-UX hardware platforms and all HP file systems including TurboImage and ALLBASE SQL. To yield maximum performance at every step along the way.

No wonder PowerHouse, with over 18,000 installations in 68 countries, is the most widely installed application development software on Hewlett-Packard, Digital, and Data General systems. And it's now available for the IBM AS/400 and strategic UNIX platforms. So try using some real tools, not toys, for application development. For more information call 1-800-4-COGNOS. In Canada call 1-800-267-2777.

COGNOS®
Real Tools. Not Toys.



U.K. +44 344 486668 • France +33 1 47 75 07 78 • Germany +49 69 666 6802 • The Netherlands +31 3402 49199 • Belgium +32 2 725 1042 • Sweden +46 8 752 7795
Spain +34 1 556 0401 • Australia +61 2 437 6655 • Hong Kong +852 892 0567 • Singapore +65 220 3248 • Japan +03 5391 2400 • Latin America +404 471 0885

© 1991, Cognos, Incorporated. Cognos and PowerHouse are registered trademarks of Cognos, Incorporated.
The other trade names referenced are registered, trademarked or service marked by their respective manufacturers.



Premier
Solution
Provider

CIRCLE 261 ON READER CARD

IEM's quality products

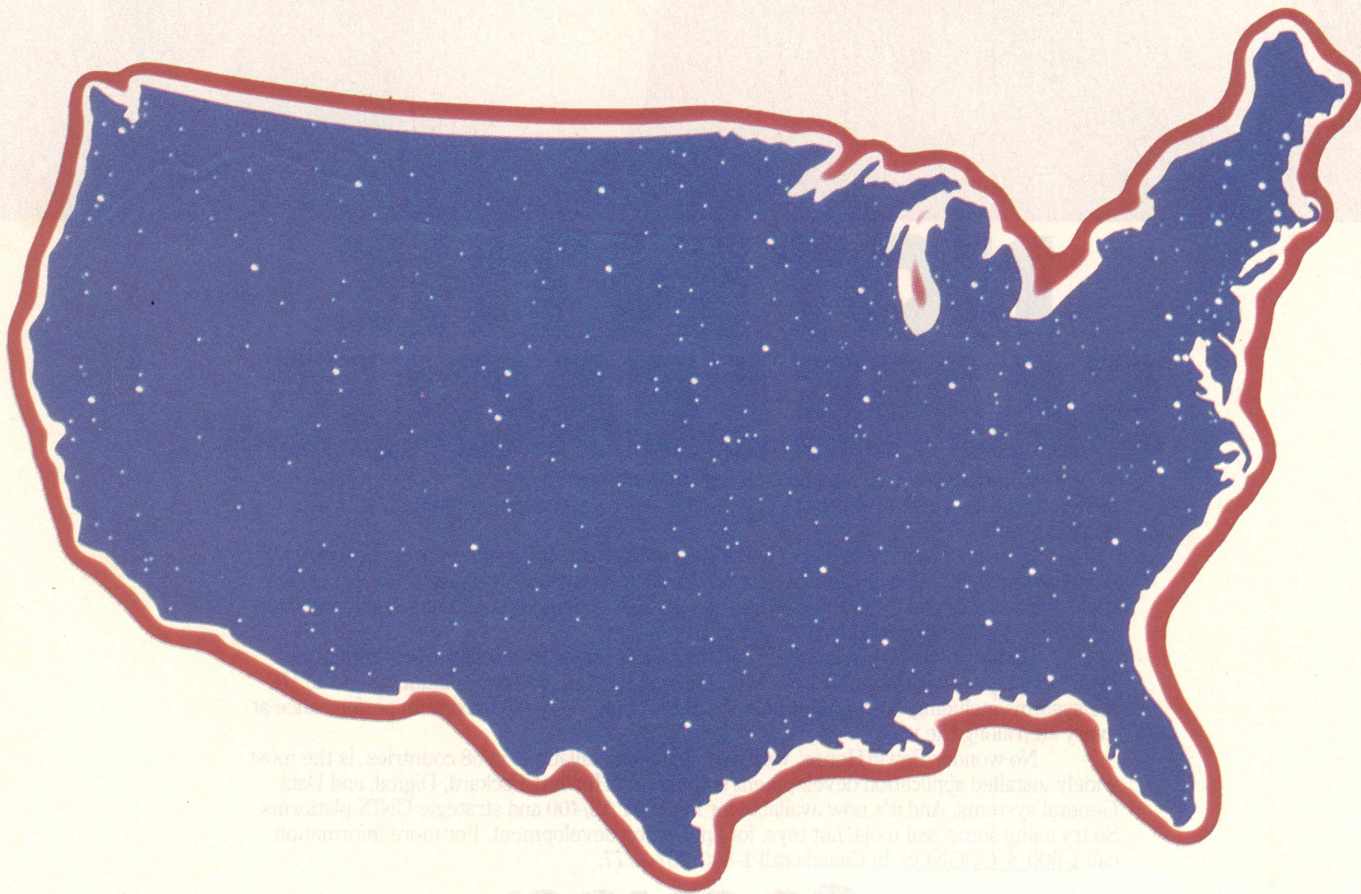


now backed by nationwide on-site service

IEM now has 95 authorized service centers throughout the United States, catering to more than 350 cities.

Options include 8 hour and 4 hour on-site response time, as well as depot repair service.

Contact IEM today to order affordable, dependable, on-site service for your IEM products.



1-800-321-4671

IEM is the manufacturer of the largest line of HP third-party peripherals in the world.

One Source, Many Solutions

IEM, Inc.
P.O. Box 1889
Fort Collins, CO 80522 USA



U.S. and Canada 1-800-321-4671
Phone: (1) 303-221-3005
FAX: (1) 303-221-1909

CIRCLE 122 ON READER CARD

©1991 Anis, Inc. S2.891

C O N T E N T S

OCTOBER 1991

VOL.5, NO.10

30 ►

Financial Decisions

By Robert Shelley

Faced with a cost-conscious world of multivendor networks, accounting software vendors are taking stock in client-server computing. Understanding their approaches may help you realize the promises and avoid the risks of this emerging technology.

40 ►

OpenView Made Clear

By Bill Sharp

HP's comprehensive network management services once were considered a blue sky idea, now they shed light on even the most nebulous networks. Can HP's OpenView bring your network dilemmas out from behind the clouds?

46 ►

Fantasy LAN

By Gordon McLachlan

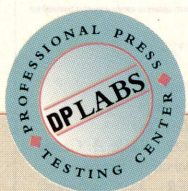
Although crucial to client-server computing, the vision of integrated PC networks remains mostly make-believe. A glimpse of the available solutions may stimulate your imagination and could turn your fantasy LAN into a reality.

54 ►

The Tailor-Made Office

By Paula Jacobs

For custom-fitted commercial networks, HP NewWave office is designed to hide the seams. The first step toward workflow automation, NewWave Office masks the complexity of the network behind the desktop to make users more productive.



FROM THE LAB

Clear Sailing

By Joel Martin

Navigate Your Way
Through Jobstreams With
Bradmark's Telescope 64

Freedom Of Speech

By George Frueh

Los Altos Software's DBfree
Lets You Communicate
With IMAGE Databases—In
Your Natural Language .. 68

C O L U M N S

Networking: The Big Makeover

By Tim Cahoon

HP's Revamped DTC Doesn't Stop At Dumb
Terminals Anymore 72

HP-UX: Korn Shells

By Andy Feibus

Picking Korn Over Bourne Or C Offers HP-
UX Users Better Odds 76

D E P A R T M E N T S

Editorial	8
Industry Watch	10
News & Trends	16
Product Watch	24
Advertiser Information	80
New Products	82
Product Showcase	88
Career Opportunities	91
Software Directory	91
Advertisers Index/Calendar	92

Cover Illustration

by Masato Nishimura/The Image Bank

Rent *and* Rave.



HP Workstations Available Now From Leasametric

HP workstations and X stations are ready for immediate overnight delivery. Renting from Leasametric is easy and just a phone call away. Find out for yourself why everyone is **renting** from and **raving** about Leasametric.

Leasametric

Electronic Equipment-Renting, Leasing, Sales and Service
A member of The Marmon Group of companies



In the U.S. call
1 (800) 553-2255
In Canada call
1 (800) 268-6923

CIRCLE 475 ON READER CARD

UNIX is a registered trademark of AT&T in the U.S.A. and in other countries.

MS-DOS is a trademark of Microsoft.

Macintosh is a trademark of Apple Computer Inc.

X Window System is a trademark of MIT.

Microsoft is a registered trademark of Microsoft Corp.

NewWave is a trademark of Hewlett-Packard Co.

HP Professional

Publisher: Carl B. Marbach
Editorial Director: R.D. Mallery
Associate Publisher: Leslie Ringe

Editorial

MANAGING EDITOR Donald R. Marks
ASSISTANT EDITOR Andrea J. Zavod
SENIOR TECHNICAL EDITOR David B. Miller
TECHNICAL EDITOR Bill Sharp
APOLLO EDITOR Fred Mallett
FIELD SERVICE EDITOR Ron Levine
HP 3000 EDITOR John P. Burke
INTERNATIONAL EDITOR Marsha Johnston
NETWORKING EDITOR Tim Cahoon
PC EDITOR Miles B. Kehoe
UNIX EDITOR Andy Feibus
CONTRIBUTORS Paula Jacobs, Gordon McLachlan, Robert Shelley

DP Laboratory and Testing Center

MANAGER David B. Miller
TECHNICAL EDITORS George T. Fruch, Marty Levine, Charlie Simpson
ASSISTANT LAB MANAGER Anne Schrauger
REVIEW EDITORS John P. Burke, Tom Davis, Jerry Fink, Tony Fiorito, Miles B. Kehoe, Joel Martin, Michele Petrovsky, Barry Sobel
MIS SOFTWARE MANAGER Bonnie Auclair
MIS SYSTEMS MANAGER Kevin J. Kennelly

Design & Production

ART DIRECTOR Al Feuerstein
DESIGN/PRODUCTION MANAGER Jean Lait
TYPE/PRODUCTION COORD. MaryEllen Coccimiglio
TRAFFIC MANAGER Lori Goodson
ADVERTISING TRAFFIC ASSISTANT Teri Campbell
PROMOTIONS MANAGER Tim Kraft
GRAPHIC DESIGNERS Mike Cousart, Thomas Owen, Sue Ann Rainey, Jack Rotoli

Circulation

CIRCULATION DIRECTOR Carrie Eisenhandler
FULFILLMENT MANAGER Marjorie Pitrone
CIRCULATION AUDIT MANAGER Rebecca Schaeffer
DATABASE MANAGER Phyllis Chandler

Marketing

DIRECTOR OF MARKETING Mary Wardlaw
PROMOTION WRITERS James Jordan, Lori Solometo,
TRADE SHOW MANAGER Peg Schmidt

PROFESSIONAL PRESS, INC.

PRESIDENT Carl B. Marbach
VICE PRESIDENT R.D. Mallery
VICE PRESIDENT Peg Leiby
VICE PRESIDENT Helen B. Marbach
DIRECTOR OF SALES Jeffrey Berman
EXECUTIVE EDITOR Linda DiBasio
EXECUTIVE DESIGN DIRECTOR Leslie A. Caruso
DIRECTOR OF FINANCE Thomas C. Breslin
HUMAN RESOURCES MANAGER Mary Steigenvaldt
ASSISTANT TO THE PRESIDENT Jan Krusen

For more information on how to contact your sales representative, see page 92. For subscription information and address changes, call (215) 957-4269. Editorial, advertising sales and executive offices at 101 Witmer Rd., Horsham, PA 19044 ■ (215) 957-1500 Corporate FAX (215) 957-1050. To reach staff listed on masthead via UUNET, send MAIL to: LAST NAME@procast.propress.com

HP PROFESSIONAL ISSN 0986145X is published monthly by Professional Press, Inc., 101 Witmer Rd., Horsham, PA 19044. Subscriptions are complimentary for qualified U.S. and Canadian sites. Single copy price, including postage \$4. One year subscription rate \$30 U.S. and Canada; \$60 foreign. All orders must be prepaid. Second Class postage paid at Horsham, PA 19044, and additional mailing offices. POSTMASTER: Send all correspondence and address changes to HP PROFESSIONAL, P.O. 616, 101 Witmer Rd., Horsham, PA 19044. COPYRIGHT © 1990 by Professional Press, Inc. All rights reserved. No part of this publication may be reproduced in any form without written permission from the publisher. All submitted manuscripts, photographs and/or artwork are sent to Professional Press, Inc. at the sole risk of the sender. Neither Professional Press, Inc. nor HP PROFESSIONAL magazine are responsible for any loss or damage. HP PROFESSIONAL is an independent journal not affiliated with Hewlett-Packard Company. HP and Hewlett-Packard are registered trademarks and HP PROFESSIONAL is a trademark of Hewlett-Packard Company.

BPA

Why SUPERDEX Instead of Omnindex?

The Bottom Line.

Why are so many people moving to **SUPERDEX**? The answer is: price! Product cost is just the tip of the iceberg. Product training and development can amount to much more than the purchase price of an indexing product. **SUPERDEX** reduces development time and requires less training. So you can take advantage of indexing technology, while significantly reducing your overall cost.

Familiar Programming Techniques.

Unlike Omnindex, **SUPERDEX** uses the existing IMAGE intrinsics and error message handling. Thus, programmers are already familiar with **SUPERDEX**. This means your programmers are already trained. Likewise, the development and implementation efforts can be reduced to a minimum. As a result, productivity will increase and users will enjoy the benefit of indexing lookups and retrievals at a very low cost.

We *challenge* you to give **SUPERDEX** a try! For more information on **SUPERDEX** or a FREE demonstration copy call a BRADMARK representative today at 800-ASK-BRAD, and discover why so many people are moving to **SUPERDEX**.

Price.



BRADMARK

Technologies, Inc.

CANADA

Bradmark Technologies 1-713-621-2808

ENGLAND

Bradmark UK Limited 0905-795444

TAIPEI, TAIWAN, R.O.C.

Hewlong Info. Corp.

886-02-322-2116

GERMANY

I.A.B.G.

49-89-6088-3077

NETHERLANDS

Quant Systems

31-250-340334

MEXICO

Infosistemas Financieros 525-254-3479

CIRCLE 184 ON READER CARD



A winning combination.

Reflection® and the 3000 Connection for multiple host and LAN sessions from your PCs.

Connections. Whether it's joining muscle and mind, or extending the reach of your PCs, the right combination makes all the difference.

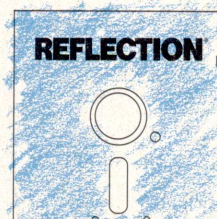
Take Walker Richer & Quinn's award-winning Reflection Series Software and the 3000 Connection from the Reflection Network Series. With quick, clean connections, PC users gain **concurrent access** to many different hosts and LANs. (Including **Novell**, LAN manager, Banyan, or any NDIS-compliant LAN.) Work on PC and host applications at the same time — and switch among them without rebooting! Or run multiple virtual terminal sessions from a PC with just one HP 3000.

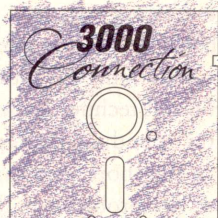
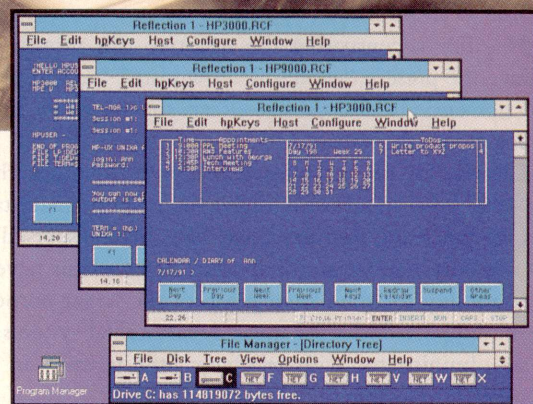
Get the competitive edge in multivendor connectivity. Pair one of the popular Reflection Series terminal emulators with the 3000 Connection.

Reflection Terminal Emulation

Reflection, the most popular choice in HP terminal emulation, delivers accurate file transfer to HP 3000, VAX/VMS, and UNIX; powerful command language; and a dynamic hot-key.

Choose from Reflection 1 Plus, for precise HP 700/94, 700/92 and DEC VT102 emulation; Reflection 7 Plus, including all the features of Reflection 1 Plus and emulation of the HP 2627A color graphics display terminal; or Reflection 1 for Windows for HP 2392A emulation and full support of the **Microsoft® Windows™ 3.0** platform.





The 3000 Connection

Teamed with one of the Reflection Series terminal emulators, the 3000 Connection delivers a cost-effective, low-memory solution for today, that you can easily build on tomorrow. Link HP 3000s, HP 9000s, VAX, UNIX, and other hosts with your PC LANs over your network. Run multiple sessions with one or more hosts from any PC **with no DTCs or LAN gateways**. All it takes is Reflection, the 3000 Connection, and a single network interface card in the PC. The 3000 Connection includes LAT, TCP/IP, Telnet and NS/VT.

Add this winning combination — and see your business pull ahead of the rest.

Call us today!

1-800-92 NETWORK

REFLECTION[®]
S E R I E S[®]
SOFTWARE

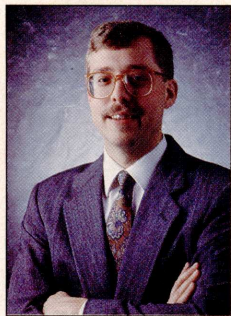
From

Walker Richer & Quinn, Inc.

"Making your PC connections count"

CIRCLE 127 ON READER CARD

The Vital Center



By Don Marks

Loot, lucre, cash, credit or collateral—call it what you will, money matters, and it matters more when there's less. MIS managers have grappled with this fact of corporate life longer than anyone. Last year, when the U.S. economy went flat and money began to tighten for consumers, MIS departments already had been feeling the pinch for quite a while.

My reason for raising this pessimistic point isn't to foster doubts about your computing investments, or even to instill caution. On the contrary, tough times or no, if your company intends to survive, it will have to maintain and enhance its technology infrastructure. Difficult as that can be in recessionary periods, it's an essential cost of doing business and an important long-term investment for any organization. After all, economic expansion *will* return, and when it does you won't be able to afford missed opportunities.

No, I'm accentuating the negative this month because I believe the present "economic downturn" has had profound—and not entirely desirable—effects on corporate information strategies and the role of MIS.

Clearly, for the established computer vendors, the corporate MIS department is no longer the revenue mainstay it once was. Its functions, in many cases, have been dispersed throughout the corporation, and individual departments have assumed responsibility for their own piece of the larger corporate network. Support duties for these departmental systems often fall to an administrator with relatively little training in the management of information systems.

What this means for the way we manage computer systems isn't obvious at first glance. You might think that the equation of smaller departmental systems and less experienced internal support personnel leads directly to low-cost hardware, shrink-wrapped software and a standards-based, plug 'n' play approach to networking. You might think this, that is, if you listened only to what the vendors say when attempting to entice new customers. Unfortunately, the connection between open systems and decentralized resources isn't quite so pat.

The Power Struggle

There's no question that HP sees its new customers offloading applications from mainframes to smaller, decentralized systems or implementing distributed client-server networks. The new HP 9000 8x7S series and the increasingly open HP 3000 offer a

tantalizing lure indeed for the new breed of corporate customer. Whether provided by VARs as part of turnkey solutions or purchased fully-configured through HP's "Instant Ignition" program, the Nova systems are effortless to install and support.

But the success of decentralized computing raises a crucial political question for MIS: Who controls the client-server network? Will MIS reassert itself and demonstrate the value of centralized responsibility for information resources, or will decentralization accelerate with corporate networks breaking up like so many Baltic states? Can individual departments or—as some advocate—even smaller entities such as workgroups effectively negotiate interconnectivity within a larger, more "democratic" framework?

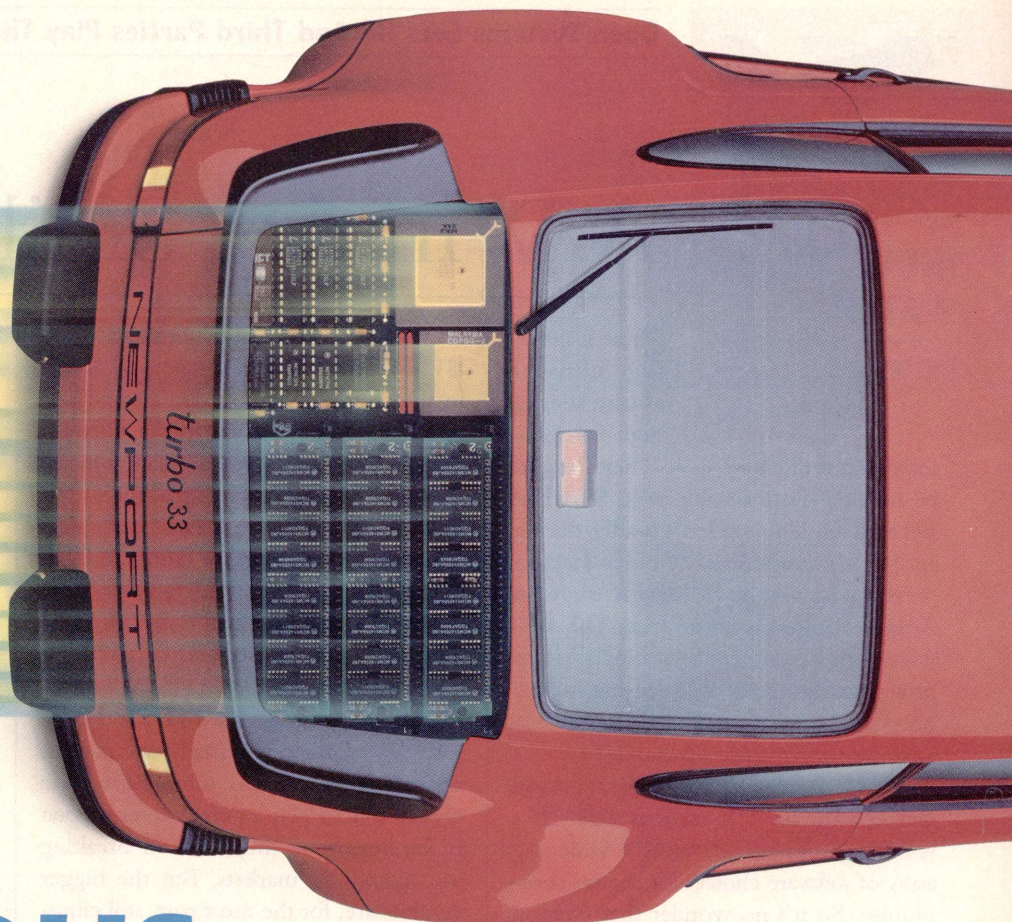
There are obvious precedents—and advantages—for each approach. Corporations have benefitted from handing computing responsibility out to individual department chiefs. More conscious of the bottom line and better aware of application requirements, these managers have purchased systems and constructed networks well-suited to the needs of their users. Frequently, these users can maintain their own systems more cost-effectively by outsourcing support services or hiring consultants to handle complex connectivity issues.

On the other side of the LAN, however, lies the philosophy that information systems should be a general corporate resource—a basic service available to the entire company. Supporters of this approach argue that scattering responsibility for implementation and maintenance of information systems throughout an organization leads to unnecessary duplication of effort and unbalanced technology development. Industry standards may solve some of these problems, but truly integrated information networks are possible only through a high degree of centralized planning—and that requires a strong MIS.

For better or worse, money will probably decide the question of centralized planning. It will also determine the future of MIS. Companies willing to forego significant technology upgrades or imprudently reduce computer spending through draconian budget cuts may save money in the short term only to find themselves swamped with connectivity problems in the long run. Spending money to bring older systems up to date or achieve enterprise-wide integration may look extravagant right now when every dollar counts, but it could, in the long-run, provide the means for a stronger recovery.

Don Marks

TURBO-33
HP Series 9000
Accelerator



SERIOUS ACCELERATION

33 Mhz speed for serious applications.

The TURBO-33 is a 33 Mhz accelerator card for Hewlett Packard Series 9000 computers. The card is compatible with the HP 216, 217, 220, 226, 236, 237, 310 and 320 workstations.

Programs run from 6 to over 100 times faster.

Compatible with Basic and Pascal.

The TURBO-33 is designed for the BASIC and PASCAL systems. No modifications are required for user programs.

Innovation from Newport Digital.

TURBO cards are also available at 25 Mhz and 16 Mhz. All the TURBO cards have a five year warranty.

Call Newport Digital for information on these and other innovative products.

TURBO-33 DELIVERS PERFORMANCE!

<u>Computation Type</u>	<u>Speed Increase</u>
Integer Arithmetic	6 to 8
Real Arithmetic	9 to 50
Real Transcendental	32 to 293

NEWPORT DIGITAL

14731 Franklin Avenue, Suite A
Tustin, California 92680
714-730-3644

TURBO 33, TURBO 25 and TURBO 16 are trademarks of Newport Digital Corporation.

CIRCLE 246 ON READER CARD



INDUSTRY WATCH

Bill Sharp

managers smile these days. They seem to be making quite a habit of it. So when Bernard Guidon smiled broadly during an HP - CompuServe/Collier-Jackson press briefing at the INTEREX show in August, it came as no surprise. The software firm's commercial products, up to now running on HP 3000 systems, would be ported over to HP 9000 Series 800 business systems and servers.

This is good news for Collier-Jackson fans and for HP-UX users as well. HP's winning ways are attracting a widening array of software choices for its user community. So it's no wonder that Guidon not only smiled, but positively glowed.

So much for the expected. What was interesting was that Guidon continued to smile as his co-host, Compuserve/Collier-Jackson vice president Gary Vigneau talked about not only linking his product with HP ALLBASE/SQL but also with the customer's choice of third-party databases such as Informix, ASK/Ingres and Oracle.

It's not particularly remarkable that a software supplier would consider supporting more than one database, but to feel comfortable enough with the idea to talk about it in front of an HP general manager, now that was interesting. I found myself listening to Vigneau and doing snap-glances over to check the status of Guidon's grin—yep, still there.

Open Competition

After years of the proprietary approach, where a major vendor either provides *the* solution, or allows an independent software vendor (ISV) to do the job, it still

There is nothing unusual about seeing high level HP

seems odd to see both major vendor and ISV solutions allowed to compete freely in the marketplace. Guidon's smile was proof that open systems in the software arena is alright by HP. He's happy to see ALLBASE selling wherever possible, but he won't stand in the way of customers who want to use another DBMS instead.

Of course it works that way—you're probably thinking—that's the idea behind open systems, turkey! Sure, you're right, but stop for a moment and name the number of large hardware and large software vendors who freely operate this way. Smaller vendors often have little choice but to play open systems—open is the best hope they have of breaking into computer markets. But the bigger vendors are, for the most part, still clinging to those proprietary profit margins.

How can you tell what constitutes an open systems approach to software? Just apply this test to any large vendor: Can you take a major product and place it in

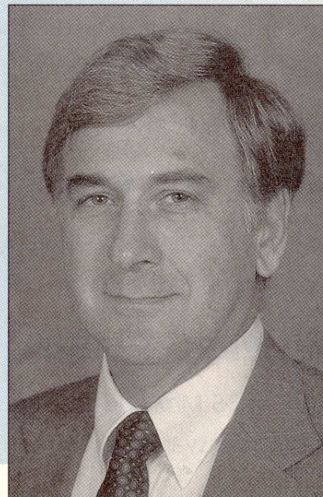
an environment entirely surrounded by standards-based products from other vendors? If you can, then the product in question is probably an open one. What you find in playing with this is that some seemingly open products are not open at all, while other products are more open than you might think.

Open And Not-So-Open

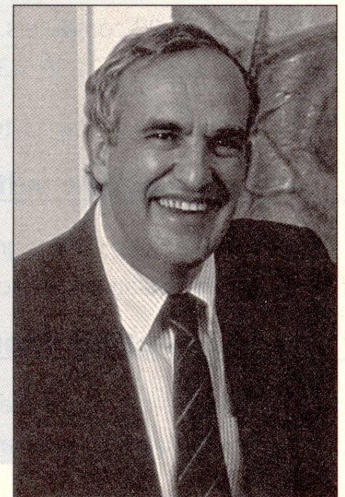
If you look at the article on OpenView in this issue (see pg. 40), you'll find that OpenView Network Management Server can run on HP, Sun or (soon) IBM workstations. And atop OpenView, you can run a growing array of third-party network management applications. It will even talk to some third-party network testing hardware. So you can surround OpenView with products from other vendors, and it will still function as promised—that is open.

Collier-Jackson's World Class Series Accounting and Human Resource solu-

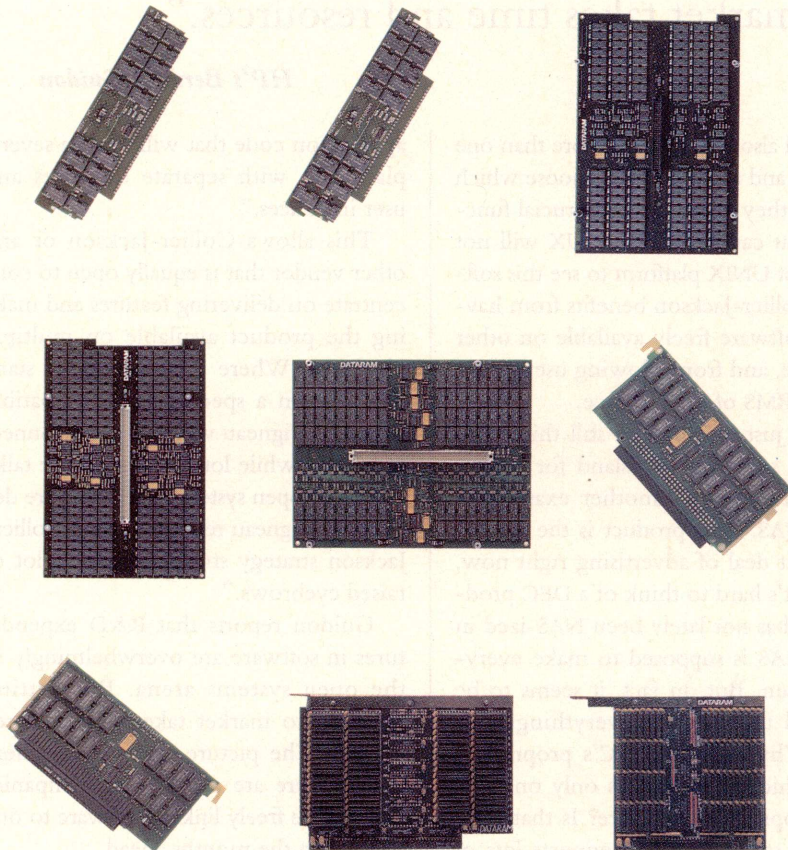
Gary Vigneau
Vice President of Sales
and Marketing
CompuServe/Collier-Jackson



Bernard Guidon
General Manager
General Systems Division
Hewlett-Packard



If our memory can't beat HP's on price, performance & support,



Take your pick. A free Dataram board for your HP9000 340-380, 400 Series or Apollo DN3000-5500 workstation if we can't beat HP's memory on the combination of price, performance and support.

We offer boards from 2MB up to 32MB, all fully HP-compatible and engineered with the same uncompromising quality.

Available now at an average of only \$475 per megabyte. That's 40% below HP's prices! All backed by:

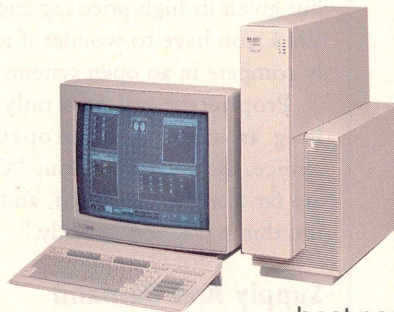
- Lifetime guarantee
- Free trial period
- Express spares
- Service-call expense reimbursement
- Dial-in assistance
- Trade in/up
- Technical support

Dataram gives you more for your money than HP, no matter how little or how much you spend.

But you be the judge. Call **1-800-822-0071** and ask us to quote on the memory you're planning to buy.

If our offer is better than HP's, we can put the board in your hands within 24 hours. If we can't beat HP, the board, like the call, is free.

Only from Dataram, the best name—and values—in memory.



any board here is yours, **free.**

DATARAM

All names referenced are trademarks of their respective manufacturer.

P.O. Box 7528, Princeton, NJ 08543-7528

CIRCLE 240 ON READER CARD



INFOTEK SYSTEMS

**The unequaled
leader in HP
memory is also
your best source
for Storage &
Back-up devices!**

- High capacity SCSI drives
- Dependable DAT backups
- Custom Storage/Backup subsystems

**For more information, call
1 (800) 767-1084**

**For the highest quality,
best service and foremost
technical expertise look to**

INFOTEK SYSTEMS

The Enhancement Company

**625 S. Lincoln Ave. / Suite 204
Steamboat Spgs, CO 80487
303/879-1184 FAX 303/879-1195**

CIRCLE 135 ON READER CARD

“R&D expenditures in software are overwhelmingly in the open systems arena. But getting products to market takes time and resources.”

HP's Bernard Guidon

tions will also function on more than one platform and allow users to choose which database they prefer for that crucial function. You can bet that HP-UX will not be the last UNIX platform to see this software. Collier-Jackson benefits from having its software freely available on other hardware, and from allowing users to tie in the DBMS of their choice.

Now just in case you still think I've been on some far-off island for several years, let's provide another example—DEC's NAS. This product is the subject of a great deal of advertising right now. In fact, it's hard to think of a DEC product that has not lately been NAS-ized in an ad. NAS is supposed to make everything open. But, in fact, it seems to be designed to integrate everything with VMS. Why only on DEC's proprietary VMS, which in turn runs only on DEC VAX proprietary hardware? Is that truly an open strategy? NAS connects lots of things and apparently does this very well, but given its high price tag and focus on VMS, you have to wonder if it can really compete in an open systems market.

Proprietary pry bars only work so long as users have no open systems choice. But, says Guidon, "Customers are far from being stupid, and they figure things out very quickly."

Supply And Demand

ISVs aren't exactly slow on the uptake, either. Collier-Jackson's Vigneau states his case clearly. "What we are striving to do is to remove the hardware platform from consideration," he says. "We will sell our software on its functionality and the customer can pick the hardware on other criteria. We will have one set of

application code that will run on several platforms, with separate databases and user interfaces."

This allows Collier-Jackson or any other vendor that is equally open to concentrate on delivering features and making the product available on multiple platforms. Where a customer has standardized on a specific SQL-compatible database, Vigneau will smile and connect to it. And while lots of vendors are talking about open systems, and some are delivering, Vigneau reports that the Collier-Jackson strategy still generates "a lot of raised eyebrows."

Guidon reports that R&D expenditures in software are overwhelmingly in the open systems arena. But getting products to market takes time and resources. The picture that emerges here is that there are a lot more companies that will be freely linking software to one another in the months ahead.

According to Guidon, increasing numbers of software vendors are producing plug and play products, products that function like building blocks, allowing systems integrators and users to combine them as they wish to create the final system. "More and more companies are making a business out of supplying one or more of these blocks, and the user wants the freedom to choose who is the best supplier for each block," he says.

Why is this change not more evident? It takes time, says Vigneau. "Customers are still getting used to open systems," he says. "I think that we are going to see a tidal wave effect and everybody will be doing it. It is getting close to exploding now. We are betting on it, just like HP did." ■

ME10/ME30 Productivity Tools

Three new ME10/ME30 Add-on Utilities to Plot, Print, and View MI-format drawings more conveniently than ever before...

"PlotMI products are saving our CAD operators countless hours in plotting time... PlotMIView has allowed us to bring MI drawings to any PC. This is an extremely cost effective way to view drawings. PlotMIView is very beneficial when working at a remote site with laptop type computers."

-- Mark Rossi, Food Engineering Corp.

"PlotMI and PlotMIUtil are the key to our engineering drawing reprint system. This software works, it works fast, and is easy to implement!"

-- Karl Ellason, H-C Industries

"The Drafting department uses PlotMI and PlotMIUtil extensively to produce rapid A-size check plots on a LaserJet. This saves time and money because the plot is generated in the background, allowing our draftsmen to continue working, and the output is sent to an unattended device using cheap bond paper. PlotMIView provides our Quality Control inspectors with instant access to these latest drawings."

-- Richard Barnes, M/A-Com, Inc.

PlotMI™ prepares HP Model Interface (MI) files for plotting on HPGL compatible output devices without having to load ME10 or ME30:

- A single copy of PlotMI can serve the plotting needs of an entire site
- Supports all drawing features provided by ME10/ME30 software
- PlotMI runs *in the background*, does not tie up a workstation while plotting
- Provides advanced control over drawing content and page layout
- Layout multiple drawings on a single output page
- Plotting can be performed from any workstation or ASCII terminal
- Can batch process multiple drawings with a single command
- Works with the ME10 spooler and the lp spooler
- Produces long axis plots
- Customizable to use your plotter's special features
- Uses your own fonts as well as those supplied with ME10/ME30

PlotMIUtil™ prints ME10/ME30 MI files on any model HP LaserJet, PaintJet, and DeskJet printers, or on a Postscript-capable printer:

- A single copy of PlotMIUtil can serve the printing needs of an entire site
- Runs stand-alone, or seamlessly integrates into any PlotMI script, HP-UX shell script, or lp spooler script
- Compresses all output data for faster downloading and printing
- Prints drawings faster than pen plotters
- Drawings may be printed on A or B size media (LaserJet 2000, PaintJet XL and Postscript capable printers support the larger media size)
- Offers extensive user control over line style, pen color and pen width

PlotMIView™ displays ME10/ME30 MI files on the VGA, EGA, or CGA display of a personal computer, or on the graphic display of an HP 9000 Series workstation:

- Single keystrokes allow navigation, zooming, and panning
- Pan and zoom controls for observing finer drawing details
- WYSIWYG: drawings appear on the display exactly as they would if plotted on paper by PlotMI
- Extremely fast display
- Low cost PC hardware may be used for view-only work
- Runs on any PC compatible, and laptops for portable *in-the-field* viewing
- Supports a virtual memory feature for viewing extremely large drawings
- Custom batch files which allow seamless integration with networks automatically retrieve drawings from a central server for PC viewing
- Single keystrokes can trigger hardcopy plotting, by PlotMI, on local or remote printers and plotters

DAAI products are sold with a 30-day money-back guarantee and free, unlimited technical support by phone or fax. Call, write, or FAX today for detailed product information, price list, and details on bundling and volume discounts.

DAAI

668 Front Street Teaneck, NJ 07666 U.S.A. Tel. (201) 836-5508 Fax. (201) 836-0565

DAAI is an independent HP Value Added Business. PlotMI, PlotMIUtil, and PlotMIView are trademarks of DAAI. HP, HP-UX, HPGL, LaserJet, PaintJet, DeskJet, ME10, and ME30 are trademarks of Hewlett-Packard Company. Postscript is a trademark of Adobe Systems Inc.

Denmark

Hewlett-Packard Sverige AB (8) 750 2281

France

ICBT Informatique

75.75.26.06

Norway

Hewlett-Packard Sverige AB (8) 750 2281

England

Hewlett-Packard Ltd. 0344-369369

Italy

OPEN S.R.L.

051/864205

Spain

ICBT Informatique 75.75.26.06

Finland

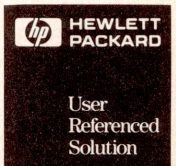
Hewlett-Packard Sverige AB (8) 750 2281

Netherlands

Hewlett-Packard CPO 020-547 69 11

Sweden

Hewlett-Packard Sverige AB (8) 750 2281





ITEM NO.	DESCRIPTION	QUANTITY	UNIT	PRICE	TOTAL
2000	Ball	1		\$2.40	\$2.40
50 in.	Ball	1		\$30.60	\$30.60
				TOTAL	\$33.00

THIS IS THE FORM THAT
2^{HIGH} PRINTED.

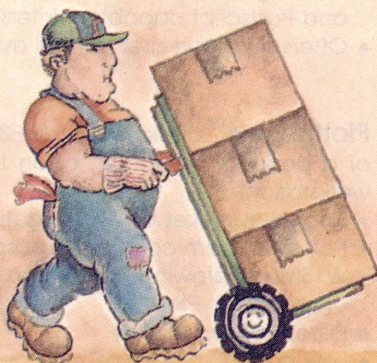
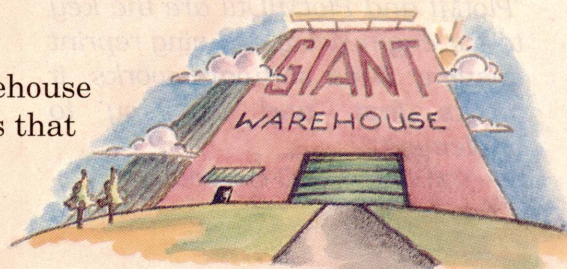
TALE of TWO FORMS

This is the Salesman taking
your order for the forms that
2^{HIGH} Forms Company printed.



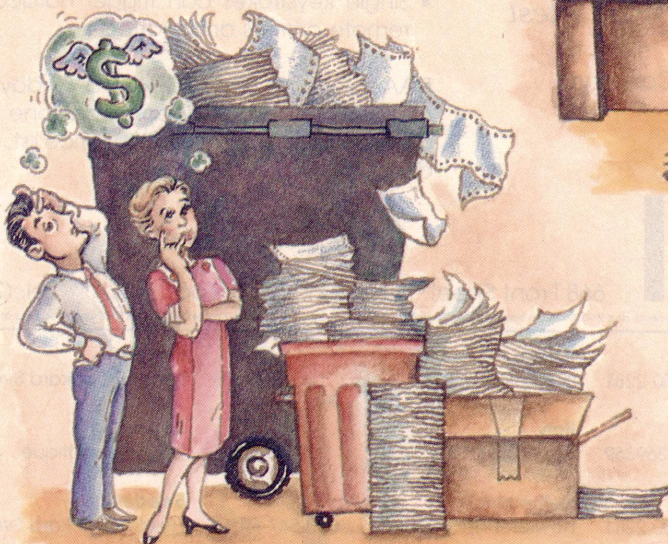
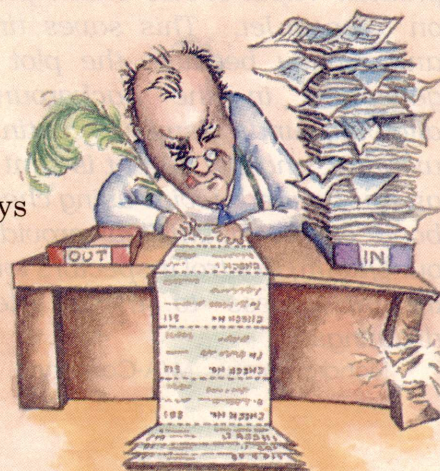
This is the 2^{long} time that passes
while you wait for the forms
that 2^{HIGH} printed.

This is your 2^{big} warehouse
that stores the forms that
2^{HIGH} printed.



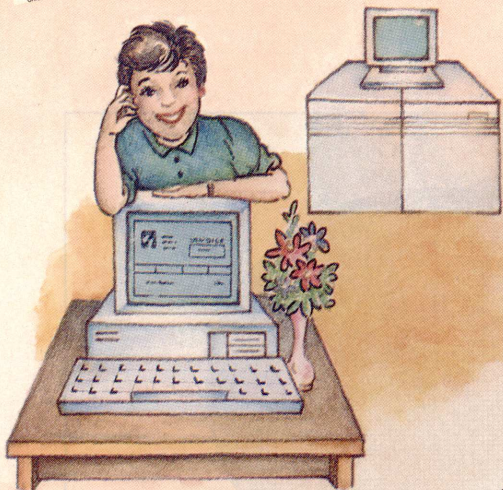
This is the 2^{many} trips lugging around
the forms that 2^{HIGH} printed.

This is the 2^{busy} accountant who pays
for the forms that 2^{HIGH} printed.



This is the 2^{much}
waste that's created
when you throw
away the forms that
2^{HIGH} printed.

THIS IS THE FORM YOU LASER PRINTED USING FORMATION.

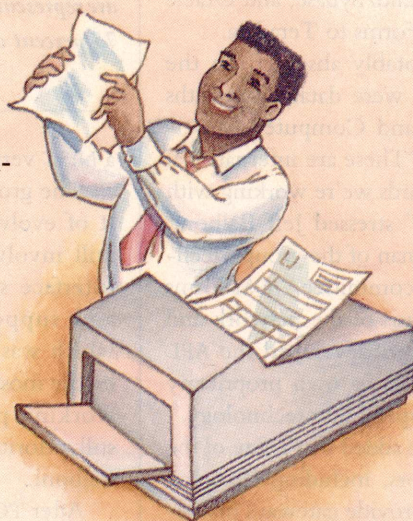


Design and edit your own forms on a PC with our easy drawing program. Upload the forms to your HP 3000 and compile them into standard environment files. When you need a form, your HP 3000 automatically merges your form with your application data and prints completed reports on any HP laser printer,

including the HP 2680/88, HP LaserJets, and the new high speed HP 5000 family of printers.

With FormationTM, you've eliminated the ordering, shipping, storing, lugging and unnecessary scrapping of obsolete forms. You've also eliminated having to reprogram your applications every time a form changes. Just think of all the time and money you'll save using Formation.

So bring it all under one roof and under your eye. With Formation.



For more information about how electronic forms can save you money and to order your free evaluation copy of Formation call 1-800-767-0611.

Tymlabs

Tymlabs Corporation 811 Barton Springs Road Austin, TX 78704 USA (512) 478-0611 Fax (512) 479-0735
Tymlabs (UK) Ltd. Munro House, 9 Trafalgar Way Bar Hill, Cambridge, UK CB3 8SQ 0954-780088 Fax 0954-780001

CIRCLE 265 ON READER CARD

SQL Access Group Demonstrates Prototype Network

Third-Party Products Comply With SQL Specs

In an unprecedented display of vendor cooperation, the SQL Access Group gave reporters, analysts and customers a glimpse into the not-so-distant future of database interoperability with a demonstration of a prototype network. While proving the maturity of the ANSI SQL standard, the scope of the exhibition was a positive sign for the overall potential of the standards-based networking industry.

For the event, 16 well-known producers of client retrieval systems and database servers modified their systems to comply with a recently agreed upon SQL spec which was jointly developed by the 42 members of the SQL Access Group and the X/Open consortium.

(The X/Open said it will implement the spec in its Common Applications Environment.)

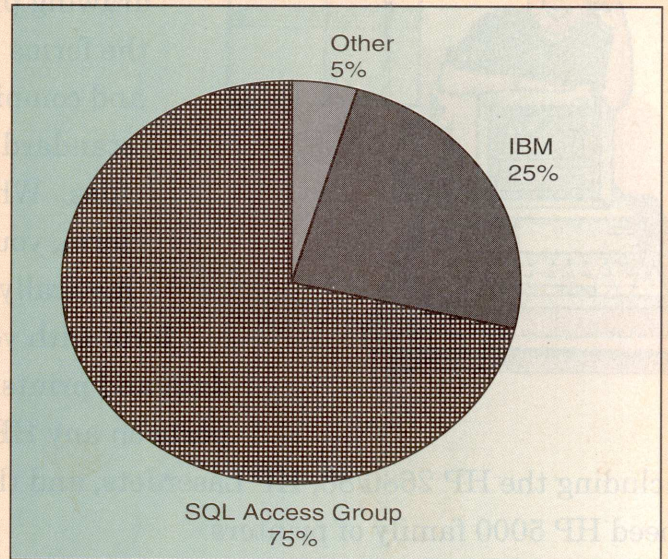
The prototype featured multiple front-end applications accessing database servers simultaneously. The Access Group's Paul Perkovic explained that the interoperability was made possible by a common description of the

database structures. The applications and servers interoperated by accessing tables and reading columns, headers and names over user-transparent connections.

Among the demo'd permutations were a Cincom flight planning system accessing Oracle; Ingres Windows 4GL to DEC's Rdb/VMS; Sun Simplify to a Fujitsu RDB-11 system remotely located in California; HP NewWave Access to NCR Top End/Sybase; and Oracle SQL Forms to Teradata.

Notably absent from the event were database goliaths IBM and Computer Associates. "These are international standards we're working with here," stressed Jeff Balboni, chairman of the group's technical committee. "OSI forms the basis of the network and X/Open developed the API. IBM has its own proprietary interoperability technology."

He added that many of the vendors, including IBM and CA, provide gateways that allow some degree of interoperability with unlike data structures. "The API defined by this group," he explained, "is ANSI embedded SQL and



Forty-two of the leading ANSI-compliant SQL database companies, including Sybase, Oracle, Informix and Ashton-Tate are represented in the two-year-old SQL Access Group, representing 75 percent of the database market.

a NIST verification suite."

The group said that Phase II of evolving the SQL spec will involve the Call Level Interface subroutine library and support for TCP/IP, which was acknowledged to be the most widely-used networking protocol. "We're still prioritizing work," said Balboni.

After TCP/IP, Balboni said Novell IPX would be the most likely candidate for development. But he said another important issue for the group will be determining

branding verification and quality testing methodologies.

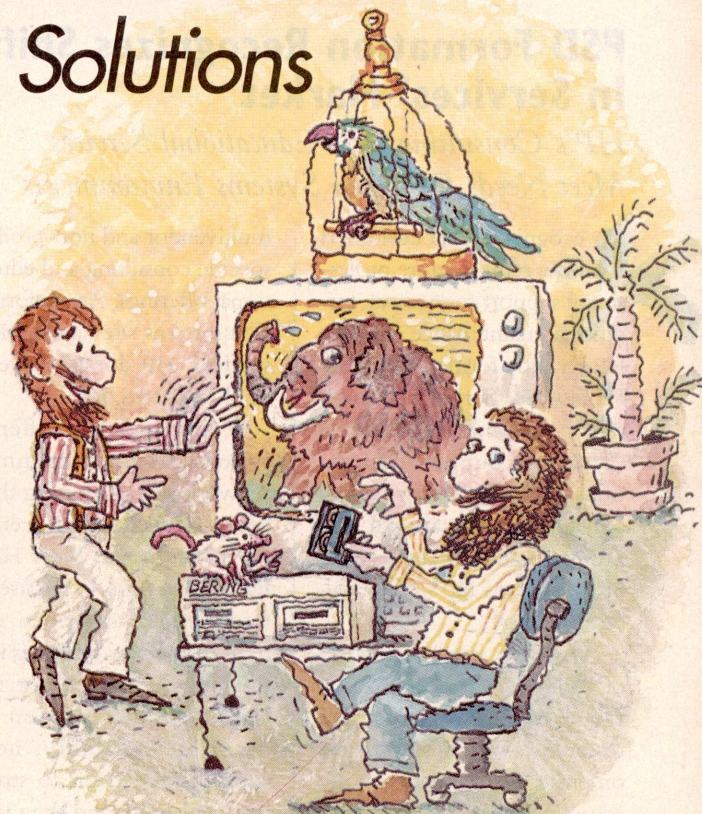
While not a standards body, the Access Group claims to be anxious to accelerate the standards research underway at ANSI and ISO, among others. In concert with X/Open, the group is expected to publish the current spec document shortly.

—Evan Birkhead, Contributing Editor

Natural Evolution of Backup Solutions



Eeeeeek! Trying to backup a mammoth database used to be a task of historic proportions.



Now, Bering's ECHO easily preserves up to 5 GB of jumbo projects on a tiny, mouse-size cartridge.

Mammoth Backup . . . on a Mouse-size Cartridge for Hewlett-Packard Computers

**NOW
up to
5GB**

- ❖ High capacity – up to 5GB on one small, economical tape cartridge
- ❖ HP streaming and cartridge tape emulation
- ❖ MPE-XL, MPE-V, HP-UX and other operating systems support
- ❖ "Off-line" or "On-line" operation mode
- ❖ Built-in real-time clock for automatic, unattended backups
- ❖ Easy portability, storage and security



For further information, give us a call at 800.237.4641

BERING™

A division of O•C•E•A•N Microsystems, Inc.

Bering Industries, Inc.
246 East Hacienda Avenue ▼ Campbell ▼ California 95008
800.237.4641 ▼ 408.379.6900 ▼ fax 408.374.8309



ECHO 4900 Series

High Capacity Streaming Tape Backup Solutions
for Hewlett-Packard Computers

©1991 O•C•E•A•N Microsystems, Inc., a subsidiary of Nakamichi Peripherals Corporation
ECHO is a trademark of Bering Industries, Inc.
MPE-XL, MPE-V, HP-UX and HP-IB are trademarks of Hewlett-Packard Company.

CIRCLE 105 ON READER CARD

PSD Formation Recognizes Shift In Services' Market

HP's Consulting And Educational Services Meet Needs Of Open Systems Environments

Recognizing that customers now require more professional support services vs. traditional maintenance services, HP recently formed a separate Professional Services Division (PSD) within its Worldwide Customer Support Operations (WCSO). PSD provides consulting, educational and project-management services in support of HP's open systems strategy.

With the implementation of PSD, HP's service organization has been restructured to focus resources specifically on professional services, at the same time broadening its service portfolio to include

multivendor and non-product specific consulting and educational offerings. Any information systems site can use PSD services; HP doesn't have to be the systems base.

Tying together different systems within a common network and supporting these components has long been an HP strong point. Now HP is leveraging this expertise in multivendor and open systems support by bringing it to the forefront. In the past, systems support focused on hardware reliability; next, support moved on to stressing availability and then productivity. Today's issues are

professional services for open systems. Hewlett-Packard is meeting these new needs with PSD.

The core of PSD's consulting business is expected to focus on migration to open systems, application integration and information technology planning. Open systems also will play a key role in the educational services sector, with training including courses covering OSF/Motif, UNIX systems and multivendor networking.

Along with the PSD formation, Hewlett-Packard introduced three new professional services: Information Technology Strategy Consulting, to provide effective open systems solutions; Business Solutions Services, to ensure that client information technology investments have

sound business justification; and Open Systems Education, a comprehensive open systems curriculum offered either as self-paced or formal classes, 80 percent of course material is applicable to all platforms.

"The Professional Services Division is key to our overall support strategy to provide total open systems solutions to customers worldwide," states Ann Livermore, PSD marketing manager. The new unit is headed by Chu W. Chang, formerly Group Controller for WCSO. A staff of more than 4,600 stationed in more than 100 countries is now providing professional services to HP and non-HP sites alike. — Ron Levine, *Field Service Editor*

HP Reports Nine Percent Growth

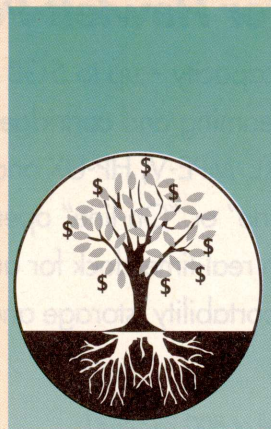
Third-Quarter Profits Increase Despite Market Slump

The U.S. economy may be slow on the mend and competition remains fierce in the computer marketplace, yet Hewlett-Packard continues to report increased earnings. HP's fiscal year ends this month, and its third quarter numbers indicate that the full-year net will reflect a favorable response to its corporate reorganization and industry-stunning workstation introductions. In the third quarter ending July 31, HP reported a nine percent increase in net revenue and eight percent growth in net earnings.

Still, despite an increase in sales and service revenue and

an increase in both U.S. and international orders over third quarter fiscal 1990, these results were not as good as expected.

Orders for the HP 9000 Series 700 introduced in March exceeded expectations, but the company couldn't keep up with customer demand. Currently, HP is promising delivery times of eight to 20 weeks for Series 700 workstations. Many speculate that the production delays are the result of a backlog in chip orders from Texas Instruments. TI manufactures the floating point unit for the Series 700 implementation of PA-RISC.



HP's corporate reorganization and commitment to the Series 700 along with this summer's PA-RISC-based Nova introductions were a reaction to a drastic 18 per-

cent drop in earnings in fourth quarter fiscal 1990, and an overall 11 percent year end net. HP's President and CEO John A. Young oversaw the revamp of the company's computer business and instituted an early retirement program, which he expects to help reduce the growth of operating expenses, which were down from a year ago.

Other factors including an 11 percent increase in sales abroad and an encouraging acceptance of new products in the marketplace should help HP position itself for opportunities as they emerge in 1992. —Andrea Zavod, *Assistant Editor*

THE ONLY TAPE DRIVE THAT PUTS 25GB ON A SINGLE 8MM TAPE.



Do you wish you could find a backup system with enough capacity, speed, and sophistication to backup unattended?

Could you recreate a document from scratch in the time it takes you to restore it?

FAST BACKUP, FAST RESTORE.

Introducing the CY-8500, the 8mm tape drive that gives you up to 25 GB on a single tape. And with transfer rates of up to 90 MB per minute, backup takes less time, frees resources, and makes frequent backup simple and convenient.

And that's not all. The CY-8500 offers fast file search capability. So you get the advantages of high capacity and

fast transfer rates plus the ability to locate and restore your files quickly – about 75 times faster than normal speed.

CONFIGURATION FLEXIBILITY.

The state-of-the-art liquid crystal display gives you complete drive status information.

Command under execution, transfer rate, tape remaining, and ECC are presented in a clear easy-to-read format. By offering such features as data compression – for five times the storage capacity per tape – and data encryption – giving you data access control – the CY-8500 adapts to your company's growing needs. We'll adapt to your site requirements

too, with rack mounting options and cable lengths of up to 80 feet.

PROVEN TECHNOLOGY.

Best of all, the CY-8500 offers peace of mind. 8mm helical scan technology, designed for data recording, gives you demonstrated performance and reliability. Not an adaptation of an audio recording format.

The CY-8500 is part of a complete family of tape backup products that range in capacity from the 150 MB ¼" cartridge streamer to the 2 TB cartridge handling system. All backed up by our in-house technical support group and 12-month warranty. For more information on how you can enjoy the best value in tape backup, call today at 804/873-0900.

CONTEMPORARY
CYBERNETICS
Group

TRUE "PLUG-AND-PLAY" COMPATIBILITY WITH:

Alliant	DEC Unibus	PC 386/ix
Alpha Micro	Gould	PC MS-DOS
Altos	HP	PC
Apollo	IBM AS/400	Xenix/Unix
Arix	IBM Mainframe	Pertec
AT&T	IBM RISC/6000	Plexus
Basic-4	IBM RT	Prime
Concurrent	IBM S/38	Pyramid
Convergent	Macintosh	Sequent
DataGeneral	McDonnell	Silicon
DEC 3100	Douglas	Graphics
DEC BI-Bus	NCR	Sun
DEC HSC	Novell	Unisys
DEC Q-Bus	OS/2	Wang
DEC TU/TA81	PS/2	and more

PeopleSoft's/HRMS Supports ALLBASE/SQL Under MPE XL

HP Plans Implementation In Personnel And Payroll Management

PeopleSoft Inc.'s PeopleSoft Human Resource Management System (PS/HRMS) now supports HP 3000 RISC-based computers running HP ALLBASE/SQL under MPE XL.

This is the first RISC-based computer platform to be supported by PeopleSoft. HP's corporate headquarters purchased PeopleSoft's HRMS with the intention of using it internally for personnel, benefits and payroll management applications.

PS/HRMS is an integrated human resource management

solution based on a client-server architecture. It supports multiple RDBMSs, hardware platforms and Microsoft Windows 3.0.

All three PS/HRMS applications — Benefits, Payroll and Human Resources — will be available on the HP 3000 platform in January 1992.

Contact PeopleSoft Inc., 1331 N. California Blvd., Walnut Creek, CA 94596; (415) 946-9460.

Circle 373 on reader card

Speedware Performs At 51.6 tps With ALLBASE/SQL

Supplied To All North American User Groups

Infocentre Corp., the developers of Speedware, completed its performance benchmarks for HP's ALLBASE/SQL RDBMS at the HP factory in Cupertino.

Using a Transaction Processing benchmark, Infocentre produced what are the fastest performance results to

date of any 4GL or toolset available on the HP 3000 and ALLBASE/SQL.

The benchmark results show Speedware performing at a rate of 51.6 transactions per second. This measurement represents less than 30 percent overhead compared to HP's standard benchmark



written in the C language.

HP's expectations for third-party ALLBASE/SQL tools and 4GLs was a 50 percent performance differential between their respective

products and the C program.

Infocentre also announced it will supply its Speedware software to all regional and local HP user groups in North America. On-going training and consulting will be available through local Infocentre sales/support offices.

Contact Infocentre Corp., 7420 Airport Rd., Ste. 201, Mississauga, Ontario, Canada L4T 4E5; (416) 678-1841.

Circle 371 on reader card

Cognos Announces Product Enhancements

Integrates PowerPlay, InQuizitive With VISIBILITY

At this summer's INTEREX conference in San Diego, Cognos made several announcements involving its PowerHouse, PowerHouse ARCHITECT, InQuizitive and PowerPlay products.

The company announced

new versions of its PowerHouse fourth generation language. PowerHouse 4GL 5.26 for MPE V systems now provides user interface improvements such as moveable/removable MODE and ACTION files, and in-field editing, as well as an

interactive application debugger for improved application development and debugging in this environment. PowerHouse 4GL 5.26 is priced from \$5,000 to \$40,000.

Cognos also announced new versions of PowerHouse

and the PowerHouse StarBase relational database system for HP 9000 Series 700 and 800 workstations. PowerHouse 6.03 features advanced user interfaces with full color support, pull-down menus, pop-up windows, screen overlays, dynamic highlight-

HP Forms Partnership With Deltec Electronics

CPS Group To Sell 2000 Series UPSs

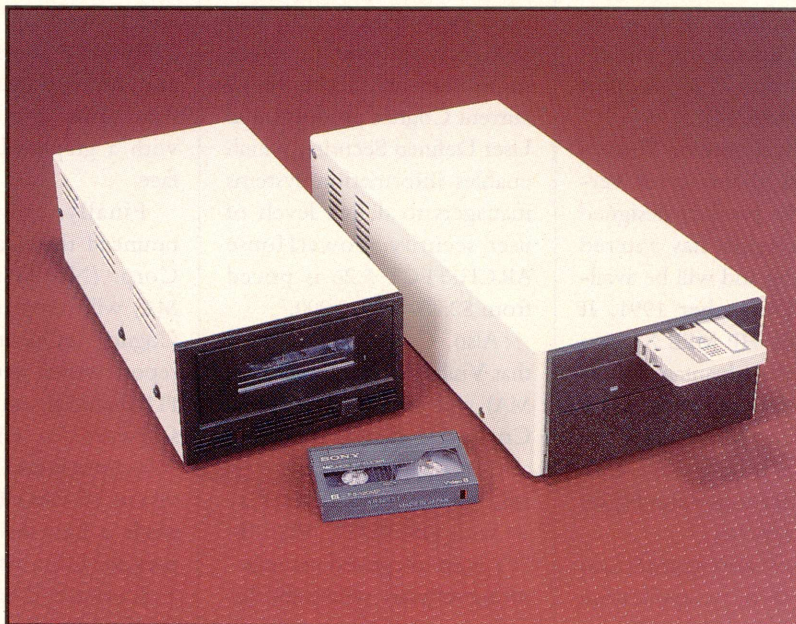
Hewlett-Packard and Deltec Electronics recently teamed up to sell Deltec's 2000 Series Uninterruptible Power Systems (2000 Series UPSs) through HP's Complementary Products Sunnyvale (CPS) Group.

The 2000 Series UPSs protect hardware and data from utility power line problems and they reduce the cost of running the computers on tomors June 1, 1991. Through this exclusive agreement, HP customers who purchase a 2000 UPS also will receive software that provides monitoring, network status messages and automatic server shutdown for systems backed up by the 2000 Series UPS. This software is compatible with HP-UX and Apollo Domain operating systems supporting HP's network applications.

Contact Deltec Electronics Corp., 2727 Kurtz St., San Diego, CA 92110; (619) 291-4211.

Circle 372 on reader card

Why not the best?



**HP 1000,
HP 3000, &
HP 9000
150 Megabyte
& 2 Gigabyte
Streaming Tapes**
Unattended backup
of all your data on a
single ultra-compact
cartridge.
Media translation &
SSS update service
available

Also available:

HP 1000 Memory Expansion

Improves system performance. Free evaluation.
512 KB to 32 MB expandable cards. 2 year warranty

High Performance SCSI Interfaces for HP 1000, HP 3000, & HP 9000

Superior to IEEE-488. Used with all Herstal
Automation peripherals

HP 1000 & HP 9000 Disc Drives

65 MB to 638 MB. 30,000 hour MTBF.
Up to 7 drives per interface



HP 1000 & HP 9000 Optical Discs

1 Gigabyte Erasable and "Write Once". Ideal for
information retrieval and archival data storage

Ramdisc/1000 Speeds up file access

Superclock/1000 Automatic time & date

*"I promise you —
no service hassles, no
matter who is servicing
your HP system."*

Rick Walsh
President



HERSTAL

AUTOMATION LTD.

3171 West Twelve Mile Road
Berkley, Michigan, USA 48072

Telex 650-321-1560

FAX 313-548-2010

Phone 313-548-2001

ing, scrollable fields, variable size screens and designer function keys, as well as a screen painter and interactive application de-bugger.

The advanced features of StarBase 3.10 include concurrency controls and a two-phase commit protocol which assures the accuracy of data in multiple databases. StarBase 3.10 features improved compliance with SQL standards, and better network security when using the TCP/IP network protocol.

PowerHouse 6.03 and StarBase 3.10 are priced from \$5,940 to \$224,100 depending on the number of users.

PowerHouse also now fully supports the HP ALL-

BASE/SQL RDBMS. Both the latest terminal-based version of PowerHouse 4GL (6.19) and the upcoming client-server version (7.09) support HP ALLBASE/SQL.

One final note on PowerHouse: A client-server version of the product designed for HP systems has entered field testing and will be available in December 1991. It will enable HP MPE XL systems to take advantage of client-server computing using PCs running Microsoft Windows that interoperate with host applications running on MPE XL servers.

Cognos also introduced version 5.6 of its application maintenance product, Power-

House Architect. The new version is fully compatible with PowerHouse 4GL 5.26 and includes user interface improvements, access to all current Cognos products, and User Defined Security, which enables information systems managers to define levels of user security. PowerHouse ARCHITECT 5.26 is priced from \$2,000 to \$10,000.

Also, Cognos announced that Visibility Inc. (Stoneham, MA) will resell and integrate Cognos' end-user reporting and analysis tools — InQuizitive and PowerPlay — with VISIBILITY. VISIBILITY is an integrated manufacturing software system for discrete manufacturers with make-to-order, engineer-to-order and make-to-stock production requirements. It is

written in PowerHouse. The combination of InQuizitive and PowerPlay will enable VISIBILITY users to explore and analyze manufacturing data easily and thoroughly with a graphical user interface.

Finally, Cognos announced that Cardinal Data Corp. (Needham Heights, MA) will integrate and resell Cognos' InQuizitive end user report writer with its PRO/FIT financial and distribution software for HP 3000 and 9000 computers. The next revision of PRO/FIT will include a built-in data dictionary for InQuizitive.

Contact Cognos, 67 S. Bedford St., Burlington, MA 01803; (617) 229-6600.

Circle 367 on reader card

Saber-C Integrates With HP's SoftBench

Developers Can Create, Test, Debug And Enhance C Applications

Saber Software Inc. announced the integration of its Saber-C programming environment with SoftBench, a software development framework from HP.

This integration of Saber-C Release 3.1 allows development organizations that have chosen SoftBench as their software development framework to use Saber-C to create, test, debug and enhance their C applications. Saber-C users can work through SoftBench, an open-integration CASE framework, to communicate with other CASE products.

For example, a Saber-C user can directly access configuration management, analysis and design, project

management, or any other tools that are part of their SoftBench framework.

Contact Saber Software Inc., 10 Fawcett St., Cambridge, MA 02138-1110; (617) 498-3000.

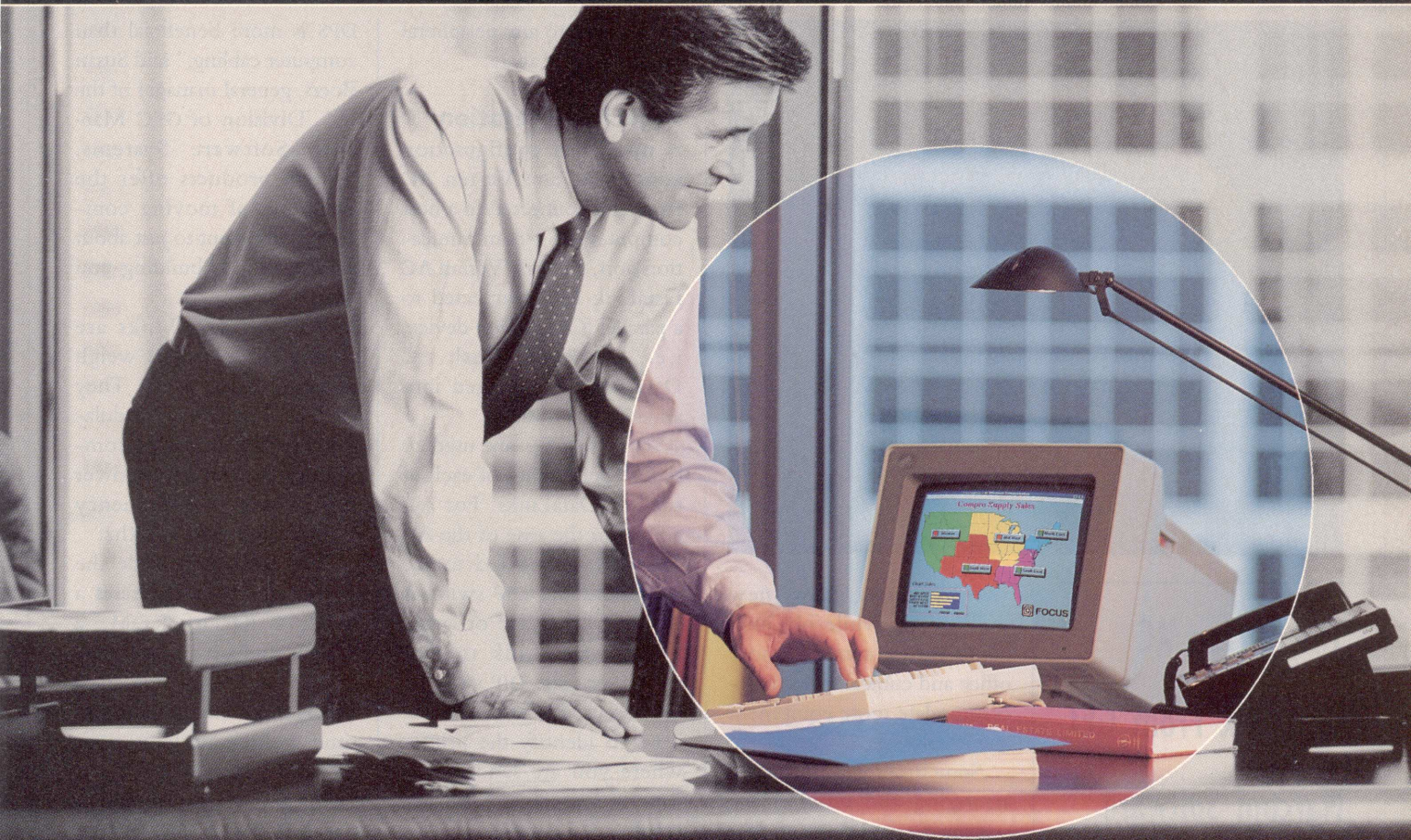
Circle 366 on reader card



For Your Information

- HP announced three courses that teach users and information systems managers how to work in a UNIX operating system environment. The courses—"UNIX System: An introduction For New Users;" "UNIX System: Managing Users And Their Environment;" and "UNIX System: Transferring Files and Directories"—are applicable to non-HP as well as HP computers based on a UNIX operating system.
- Island Graphics Corp. announced that it's shipping full-color versions of IslandDraw and IslandPaint together as a complete UNIX-based graphics package for Sun Microsystems' Open Windows. (415) 491-1000.
- Wesson, Taylor, Wells & Associates (WTW) has opened a regional office in the San Francisco area to expand its ability to provide greater service to its west coast and national clients. (803) 699-5781.
- Quarter-inch data cartridge tape drives produced by Archive Technology, Sankyo Seiki, Tandberg Data and Wangtek comply with the 525 MB QIC-525 development standard for recording format and were certified by Pericom Corp. (714) 752-5942.

If you have the need to know, but still can't access the data...



Photographed at the offices of Sells, Cumis...

It's time to re-FOCUS.

If you need to get to your HP data, whether it's on HP MPE XL or HP-UX systems, it's time to re-FOCUS.

FOCUS, the world's leading 4GL, accesses over 40 different database and file types on 30 different platforms. That's why more than 800,000 people worldwide have chosen to use FOCUS in their multi-data environments.

UNIVERSAL DATA ACCESS MADE EASY WITH FOCUS

If you have TurboIMAGE, Allbase/SQL, KSAM or any of the popular databases found in the HP Open Systems Environment, look to FOCUS for the flexibility you need to integrate them.

With the FOCUS "point and click" tools, even the most casual user can access and combine data structures such as Oracle,

Ingres, Sybase, Informix, TurboIMAGE, KSAM, or Allbase/SQL—without extracts or data conversions. FOCUS gives you fast and easy access to all your HP data, from simple reporting to in-depth analysis.

FOCUS PROTECTS YOUR HP INVESTMENT

FOCUS is the flexible, easy to use, and robust solution for data access on HP Precision Architecture Systems in the HP Open Systems Environment. FOCUS keeps your existing information systems running and helps you integrate new hardware and databases. FOCUS adapts to your changing requirements.

If your HP data just isn't accessible, let FOCUS bring it to you.

Call us toll-free, at 800-969-INFO, or write Information Builders, Inc., 1250 Broadway, New York, NY 10001.

**I'd like to re-FOCUS on my Data
Access needs. Please send me
information on the circled platforms:**

HP MPE XL, HP-UX, VM, MVS, OS/400, DOS,
OS2, VAX/VMS, UNIX, TANDEM, WANG
Other _____

Name _____ Title/Dept. _____

Company _____

Address _____

City _____ State _____ Zip _____

Operating System _____ Machine Type _____

Databases Used _____

 **FOCUS**
Information Builders, Inc.

IT'S TIME TO RE-FOCUS

800-969-INFO

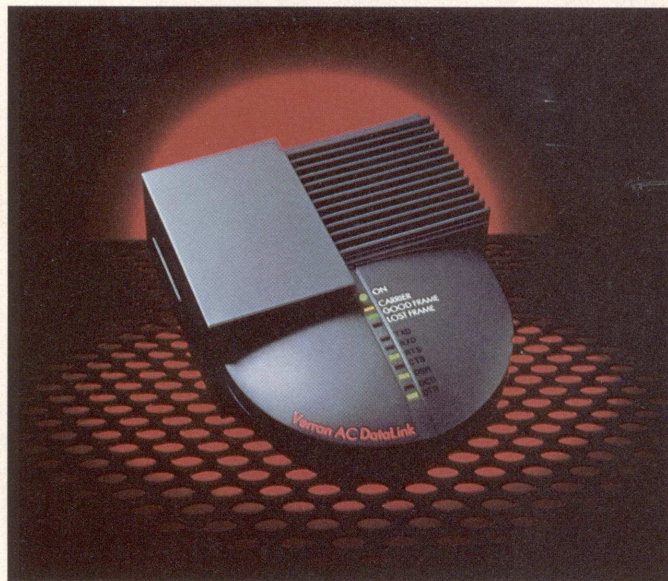
(Outside the U.S. 212-736-4433, X3700)

This advertisement refers to numerous products by their trade names. In most, if not all cases, these designations are claimed as trademarks or registered trademarks by their respective companies.

CIRCLE 247 ON READER CARD

HP 1091

Cable-Free Communications



The Verran AC
DataLink From GEC
Marconi Software
Lends New Meaning
To "Plug And
Play" Computing

As businesses grow, new walls go up while old ones come down creating more office and cubical space to accommodate more equipment and employees.

Sometimes this means rearranging and moving the computing environment, too. Minicomputers, PCs, printers and peripheral devices need to be properly connected to each other to work, but running new cables every few weeks or months is time consuming and error prone.

If your department or company is in transition or you find yourself moving your peripherals around in order to communicate with your computers, the Verran AC DataLink from GEC Marconi Software (Reston, VA) could save you time and effort.

The Verran AC DataLink takes data from your computer and transmits it through the building's AC electric

power lines to any peripheral up to 300 feet away.

DataLink Operation

A minimum configuration consists of one Verran AC DataLink connected to a host computer via a communication port, and one Verran AC DataLink DPS connected to a parallel (Centronics) device, i.e., a printer. Both AC DataLinks are plugged into an electrical outlet.

DIP switches are used to set the personality of each of the AC DataLinks. For example, in the case of the AC DataLink connected to the computer, the DIP switches are set to dedicate or assign the AC DataLink to that computer. The DIP switches are also used to create an address to identify the printer where you are sending the data — Peripheral I, for example.

The AC DataLink DPS connected to the printer uses DIP switches to identify the printer. In this example, the printer is identified as Peripheral I. The DIP switches can be altered at any time as the computing environment changes.

When you print with the host computer, the sending AC DataLink searches around the building's electrical circuit until it finds the receiving AC DataLink with the correct address (Peripheral I), then starts sending the data at a transmission speed of over 800 characters per second.

"In many situations, using the DataLink and DataLink

DPS is more beneficial than computer cabling," said Susan Boers, general manager of the U.S. Division of GEC Marconi Software Systems. "These products offer the flexibility of moving computer equipment to just about anywhere in a building you need it."

The AC DataLinks are compact in size and weigh just over two pounds. They use FM (Frequency Modulation) as their means of communicating over the power line, and span a frequency spectrum of 95 to 140 KHz.

The processor inside the AC DataLink incorporates a CPU, 8 KB of ROM, a UART, and a baud rate generator. The CSMA protocol is utilized to minimize dead time while complying with CENELEC standards.

So, if you're expanding to the floor above you, or you need to temporarily reconfigure your computing environment and can't justify running cables through a wall, consider cablefree communications with the Verran AC DataLink solution.

The Verran AC DataLink is priced at \$345, and the Verran AC DataLink DPS is priced at \$395. —George T. Frueh, Technical Editor

GEC Marconi Software Systems

12110 Sunset Hills Rd.
Suite 450
Reston, VA 22090
(703) 648-1551
(703) 476-8035 FAX

CIRCLE 314 ON READER CARD

ONE TALKS. THE OTHER EMBEZZLES.

I can combine voice, data, fax and LAN
over low-cost phone lines and save money.



drat!



Time was, the old stat mux was the best way to save money. Those days are gone. Your data-only multiplexor is costing you lost savings every day you use it.

For about the same price as a stat mux, you can now buy a data/voice network server able to combine remote voice, data, fax and LAN traffic over one low-cost leased line at speeds from 9.6K to 56/64 Kbps. It's called Marathon 1K and it's a breakthrough in technology and fast payback.

Using the same private line for voice and fax as well as data and LAN traffic can save big bucks month after

month on phone company toll charges. So Marathon 1K can pay for itself in just a few months, and after that all the savings go to your company's bottom line.

Products that don't save your company money are no more than profit robbers. Get Marathon instead.

Call for a free compressed voice demonstration or attend a Data/Voice Integration Workshop. Call toll-free (800) MICOM US [642-6687] or (805) 583-8600. Fax (805) 583-1997. Canada: (800) 932-DVNS.

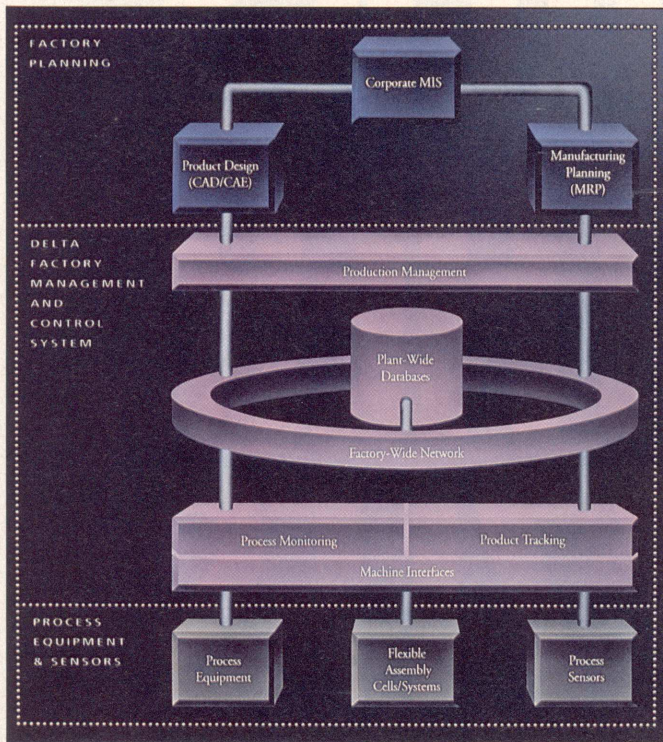
Call today and stop wasting money.

See us at INTEROP, Booth #202 & 204

MICOM®

CIRCLE 465 ON READER CARD

Factory Floor Plans



Cimflex's DELTA
Integrates
Manufacturing
Systems Into Your
Enterprise-Wide
Information
Architecture

On a shop floor, accessing certain types of information often has been painstakingly slow or even impossible—until now. DELTA, from Cimflex Teknowledge, is a full-scale Factory Management and Control System (FMCS) for repetitive, discrete manufacturing. DELTA is a suite of eight standard software modules for real-time and historical process monitoring, product tracking and production management.

DELTA forms a continuous information loop that collects information in real time from the factory floor machines, then distributes it to engineering and production planning and out to other factory information sys-

tems through a plantwide network and relational database.

DELTA's architecture lets factory-floor computers communicate on a peer-to-peer basis and through a central hub. This type of environment allows for high transaction rates by avoiding bottlenecks associated with a central processing computer. The DELTA architecture allows new applications and factory-floor devices to be easily integrated.

The Blueprint

The modules that comprise DELTA are designed to monitor, track and report on factory floor operations.

The Work In Progress module reports the movement of manufactured units through the production facility. The module provides real-time data on queue size and activity as well as historical reports. The current production counts, yields and status of processes are tracked in real-time by the Production Monitoring module.

As a safety feature, The Machine Fault Monitoring module monitors a device's operational characteristics, checks for alarm conditions and alerts personnel.

The Serialized Tracking module lets the user control the serialized unit process flow by routing serialized units through all valid process steps. The Component Traceability module is generally used with the Serialized Tracking module and collects

key information on component setup, component placement and purge requests.

Test results are collected and stored in a relational database where they are immediately available through the Test Data Collection module. This module also provides the Failure Reporting and Tracking module with unit failure test results from single or multitester environments. The Failure Reporting and Tracking module also captures data from troubleshoot and repair station interfaces in real time and stores the data in a database.

To establish and maintain statistical control throughout the manufacturing processes, the Statistical Process Control module supplies information by detecting the causes of variation that should be eliminated. Ongoing monitoring then allows for the detection of processes moving out of statistical control limits so corrective action can be taken.

The DELTA modules are based on UNIX, C and an SQL-compatible relational database management system (Oracle), the OSI model and TCP/IP. — *George T. Frueh, Technical Editor*

Cimflex Teknowledge

Corporate I West
1195 Washington Pike
Bridgeville, PA 15017
(412) 787-3000
(412) 787-0350 FAX

CIRCLE 317 ON READER CARD

Bring Your Macs into the UNIX World.

Now Macintosh users can access all the applications, files and processing power of a UNIX server – at the touch of a mouse. With unsurpassed terminal emulation and file sharing capabilities, Pacer spans the entire UNIX universe. To learn more about Pacer software, call 619-454-0565 (in the west) or 508-898-3300 (in the east). And get the best of both worlds.

Pacer
SOFTWARE

The Pre-eminent Emulator.

PacerLink gives you mouse-activated SoftKeys, multi-window concurrent sessions and full keyboard mapping for VT100/220 and others.

Worldwide Support.

Pacer's customer service staff now provides support to over 4,000 sites.

AppleTalk Services. PacerShare and PacerPrint provide AppleShare-compatible file serving and print services. All built on Apple's portable AppleTalk – co-developed by Pacer.

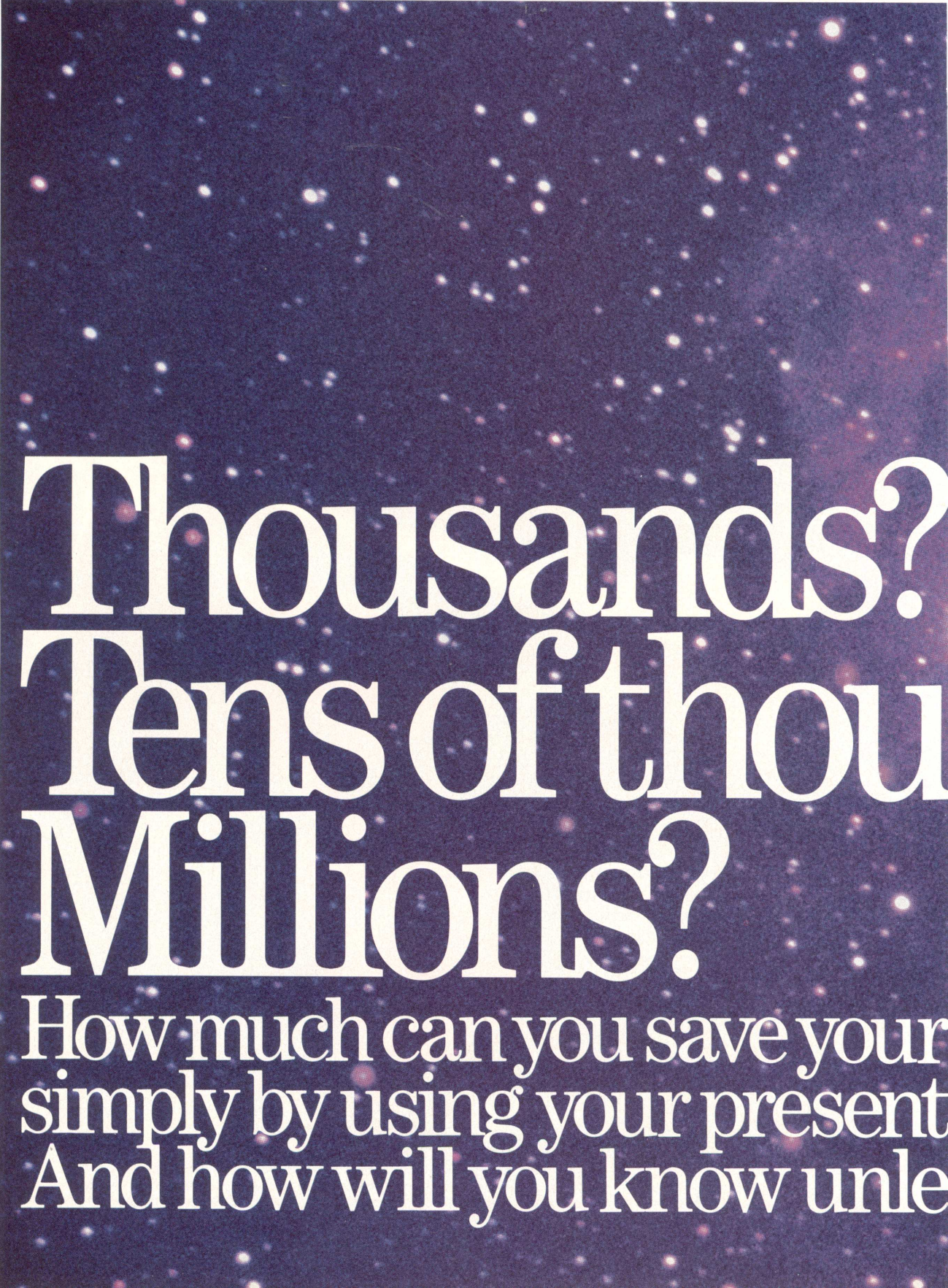
High Performance. Pacer's software takes advantage of advanced hardware platforms: Intel, Motorola, and RISC (MIPS, SPARC).

Multiple Platforms.

HP, Sun, DEC (VMS, ULTRIX), DG, NCR, SCO, ISC, MIPS and others.

PACER SOFTWARE, Inc., 7911 Herschel Avenue, Suite 402, La Jolla, CA 92037 (619) 454-0565; 1900 West Park Drive, Suite 280, Westborough, MA 01581 (508) 898-3300; Pacer Europe S.A., Valbonne, France (33) 93 653 008; Pacer Australia, French Forest, NSW (61) 2975 3706; Canon Sales Company, Inc., Tokyo, Japan (81) 3 3455 9144; NOCOM, Uppsala, Sweden (46) 18 321090. PacerLink, PacerShare and PacerPrint are registered trademarks of Pacer Software, Inc.; Apple, AppleShare and AppleTalk are trademarks and Macintosh is a registered trademark of Apple Computer, Inc.; UNIX is a registered trademark of American Telephone and Telegraph Company. All other product names subject to trademark claims.

CIRCLE 295 ON READER CARD



Thousands?
Tens of thou
Millions?

How much can you save your
simply by using your present
And how will you know unle



sands?

company
systems better?
ss you ask?

Just ask your HP Consultant. We'll come in and see if you're really getting your money's worth from your systems.

It's something our people do all the time. Because we know how important it is to squeeze the last dollar out of your computer investment. Before you spend another cent.

Our specialists from HP Professional Services will take a close look at your computing environment, then put together a program tailor-made for you. Whatever needs doing, we'll do it.

So call HP at **1-800-752-0900, Ext. 2538** for more information. You may ask yourself that million dollar question: why didn't I do it sooner?



**HEWLETT
PACKARD**

FINANCIAL DECISIONS

Faced With A Cost-Conscious World Of Multivendor Networks,
Accounting Software Vendors Take Stock In Client-Server Computing

BY ROBERT SHELLEY

Client-server computing is coming at all of us very quickly. Some are preparing for it and others are taking a wait-and-see attitude. Whatever your position, it's worth looking around to see what other companies are doing. Then you can decide for yourself when it's the right time to adjust your strategic information plans—or at least devise a contingency plan to reduce the risk of being left behind.

Overall, the accounting software vendors seem to have adopted the same attitude toward the client-server model. Tapping into their thinking can help all of us better understand the risks and opportunities presented by this major change in the use of computing hardware and software.

As with many emerging technologies, there isn't even a consensus as yet on the definition of "client-server" computing. Most people do agree, however, that it's made up of three components: clients, servers and a network that connects the two. The clients (usually PCs or workstations) make requests for services, and the server (often a minicomputer) services those requests. The services might include changing a record in a file on the server or asking for a report. The requests for services are communicated over a network, so that as this form of com-

puting grows, clients can have access to many servers instead of just the one they use most often.

Vendors Make The Move

THE ACCOUNTING SOFTWARE vendors don't agree about how to approach client-server computing, but no one should be surprised at that. Although some vendors have made a significant commitment, others want to gather more market feedback. At the same time, some new vendors are coming over from other hardware platforms, hoping that a client-server offering will be their ticket to success in the HP market.

Among the traditional HP vendors, ASK Computer Systems' (Mountain View, CA) commitment to client-server computing has been perhaps the most interesting to watch. Over a year ago it announced a strategic decision to rewrite all of its manufacturing and accounting software in a relational database environment using client-server architecture. It chose Ingres as its database vendor and began work. Well, to make a long story short, ASK liked Ingres so much it bought the company.



This level of commitment to client-server computing is the exception among most accounting vendors. But one by one, each vendor—in its own way—is recognizing the benefits that client-server can provide to customers.

HP for its part has been offering its own accounting and manufacturing software packages for years. It has now decided, however, that as computing technology moves toward industry standards (i.e., relational databases, client-server architecture and enterprise-wide computing) customers will be best served by a new approach. HP hasn't chosen to develop new software packages to meet these needs, but instead to work with selected software vendors committed to these new industry standards.

According to Peggy Wargo, HP Product Manager, "We'll continue to support our installed base of accounting and manufacturing software customers, but as they decide to move to the next generation of software, HP will support that effort by providing a list of software vendors that we feel meet HP's standards of excellence. The customer then will make his final choice." Some of the vendors selected by HP so far are ASK Computer Systems, Computer Associates, Lawson Associates and Collier-Jackson.

Mitchell Humphrey is taking a different approach from some of the other vendors, by developing the basic client-server tools for itself. "In this way, we won't have to depend on or be affected by someone else's priorities," says Ken Benvenuto, senior vice president. "Our approach to client-server will allow us to continue serving our traditional HP market, but also will allow us to expand into the HP-UX market. Perhaps most important, we'll provide our own software products for customers using ALLBASE, Sybase or Oracle, and we'll be able to add other relational database products to this list in the future."

This approach is consistent with HP's decision to unbundle TurboIMAGE and ALLBASE/SQL from HP 3000 hardware sales. The open systems approach is to let customers pick the database that's best for their intended application.

MCBA (Glendale, CA) could be the accounting software vendor with more installations across more hardware platforms than any other vendor. So, what are they doing to prepare for client-server? MCBA now is able to offer its products on the HP 9000 platform using the Informix relational database product. This is made possible by the development of a new product from Ryan McFarland (Austin, TX) called RM/plusDB, that

Many customers plan to offload mainframe financial applications to smaller, more cost-effective business servers in the coming years.

provides a gateway to translate RM/COBOL indexed file requests into database requests. Integration with additional relational databases, like Oracle, will be available upon Ryan McFarland's release of RM/plusDB for these databases.

Collier-Jackson has taken quite a few steps in recent months to better position its products for the client-server computing environment. Most important, it has selected JYACC Inc. (New York, NY) as its technology partner. JYACC produces a product called JAM, a front-end tool for databases, that's independent of hardware, operating systems, networks and databases. By using JAM, Collier-Jackson will be able to offer its customers a Windows 3.0 interface on the client and, initially, will support servers on the HP 3000, DEC VAX and several UNIX platforms, including HP-UX. According to Jim Douglas, VP of research and development, "We want to get away from proprietary systems."

Adds Mike Fisher, manager of technical services, "Because we want to protect our customers' software investments, we are re-engineering our applications to run in both the current host-based and the new client-server modes of operation. We are even taking extra efforts to allow both modes of operation at the same time."

Collier-Jackson also recently announced that it has integrated Cognos' PowerPlay, an executive information system product that runs under Windows 3.0, into its accounting software line. It will sell both PowerPlay and utility programs that extract user-selected data from Collier-Jackson software products, like the general ledger, and download it to the PC and into PowerPlay. At that point, the user can see graphic summaries of accounting data on his PC. That is, users can then view business information from a top-down perspective. They can begin with a broad view of information and then drill down through window graphics of increasing detail by clicking on a portion of the graphics with a mouse.

This sharing of processing and distribution of the functionality of the overall software offerings of a company provides an excellent example of the use of appropriate technology in a client-server computing environment.

Lawson Associates is one of the new vendors entering into

the HP community, but it comes to this market with strong credentials. Its software is installed on more than 700 mainframe computers—primarily IBM machines. Lawson has chosen the HP 9000 Series 800 platform as its point of entry into the HP market. The primary reason for making this move was that many Lawson customers were ready.

According to Bill Long, VP controller at Robbins Manufacturing, "We wanted to make a platform change, and Lawson really sold me on the benefits of UNIX. We felt HP-UX and an HP 9000 would help us do what we do more economically and save us a substantial amount of money each month in maintenance."

"By 1995, we expect 50 percent of our revenues to come from the UNIX market," adds Edward Mielech, Lawson's marketing manager for open systems products. "We really see it moving that way." Lawson's UNIX products also are available on the DEC ULTRIX and IBM AIX platforms.

Commitment And Caution

ANOTHER WELL-APPOINTED vendor making forays into client-server computing is Dun & Bradstreet Software (Framingham, MA). D&B has paired up with Powersoft Corp., makers of PowerBuilder, a PC-based application development toolkit, in attempt to adapt its existing accounting applications to client-server environments. Traditionally a big player in the IBM mainframe arena, Dun & Bradstreet plans to use PowerBuilder to develop client modules running under Windows 3.0. The new front-end modules are designed to lighten the load on centralized mainframes and make greater use of the processing power available in PCs.

D&B expects the current downsizing trend to impact the server side of the equation as well. According to D&B Software Executive Vice President and Chief Technology Officer, John Landry, many of the company's customers plan to offload mainframe financial applications to smaller, more cost-effective business servers in the coming years. "We are giving customers a migration path that provides client-server benefits while maintaining current system investments," Landry says.

Oracle (San Mateo, CA) has a family of accounting software products called Oracle Financials. Matt Duncan of marketing relations says that "the Oracle Server database and Oracle Financials Server together centralize all database and data-intensive processing for Oracle Financials. The Oracle Financials Clients process all the online, end-user operations. Oracle Financials client-server computing allows end users to share the same accounting database and, at the same time, get the full processing speed and power of their individual client PCs."

Multiview, a vendor whose products are written in PowerHouse from Cognos Corp., is taking a careful look at client-server architecture. PowerHouse 7.0, the next version of this 4GL, is due to be released this fall and will be fully compatible with client-server computing. Although users of

**Good news
for 2680/88
printer owners:**

Moving to the latest printing technology is easy . . . with **Formation™**



With Formation/2680 from Tymbabs, you can easily convert your 2680-based electronic forms to print on any HP laser printer, including the new LaserJet IIIsi, and the high speed, high resolution page printers that are on the way. And you can print your forms wherever it's most convenient — in your computer room, or on any of your departmental laser printers.

Create new electronic forms quickly. And easily.

Formation/2680 includes Formation Design, a Windows-based drawing tool that lets you design a form in a fraction of the time it takes with HP's IDSSForm. Just upload the form to your HP 3000 system and compile it into a standard MPE environment file. A single file equation merges the form with the data from your host applications.

Find out for yourself how easy it is to convert your 2680 forms and to create new electronic forms. Call today and order your free demo of Formation. **1-800-767-0611.**

Tymbabs

Tymbabs Corporation 811 Barton Springs Rd. Austin, TX 78704 USA 512-478-0611 Fax 512-479-0735
Tymbabs (UK) Ltd. 9 Trafalgar Way Bar Hill, Cambridge CB3 8SQ UK 0954-780088 Fax 0954-780001

CIRCLE 243 ON READER CARD

PowerHouse will be able to continue using PowerHouse applications with terminals and less powerful PCs, they also will be able to perform client-server operations on 386 PCs running Microsoft Windows 3.0. Richard Langevin, president of Multi-view says, "We'll be moving aggressively into PowerHouse 7.0 in the future, but we'll do so carefully and thoughtfully."

This fall Smith, Dennis & Gaylord (SD&G; Santa Clara, CA) is releasing its client-server offering, Visual XL. It uses an HP 3000 Series 900 as the server, with clients running SD&G's software written in Visual Basic from Microsoft. The client interface includes pull-down menus, scroll bars and buttons that allow the user to "point and click" through each accounting application. It also provides the ability to "cut and paste" data from the HP 3000 into a variety of PC-based applications.

Steve Dennis, chairman of SD&G, says, "We're very excited

You should expect to see some new pricing structures emerge for client-server versions of accounting software packages.

that Microsoft chose to work with us as one of a few beta developers in the minicomputer arena." And according to Ray Duncan of *PC Magazine*, "Visual Basic converts Windows application development from a professional specialty requiring months of study into a recreational activity that's accessible to even the most casual programmer." Although this is a strong statement, it seems likely that additional vendors will choose Visual Basic as a path to implementing client-server capabilities in their products.

Other companies that are considering the move to client-server architecture or have already adopted this approach include Cardinal Data (Needham Heights, MA), Infocentre (Mississauga, Ontario), Software Systems Technology Inc. (New York, NY) and Sotas International Inc. (Haverhill, MA). Cardinal Data's PRO/FIT Network supports MPE V, MPE XL and HP-UX and provides integrated online links to manufacturing software such as MM3000 and other MRP systems. Software Systems Technology's Diamond package runs on all HP platforms as well as MS-DOS and takes advantage of multiplatform communications.

Sotas International's Accountable Solutions package has moved from the HP 3000 to the HP 9000 and HP-UX. "Over the past year, a lot of people began to demand applications for their UNIX systems, and they're using PCs to access these applications on UNIX servers," notes Art King, marketing direc-

tor for Sotas. "We'll look at having the PC do more of the work as users ask for it," he adds.

Although this isn't a comprehensive review of what all vendors are doing in preparation for client-server computing, it is representative of the various approaches being pursued or considered by this group.

Prices Subject To Change

SHARED PROCESSING MAY have some impact on how vendors price their products in the future. Imagine, if you will, a company that has been using one of the larger vendors' software products for many years and is very happy with it. While the company is growing, the software is so good that the accounting department has been able to keep its staff count to five people plus the controller. However, to keep up with growing sales, the department decides to upgrade its HP 3000 Series 68 to a Series 958. When it informs the software vendor of this hardware change, it's astounded to find out that there's a \$40,000 upgrade charge for using the same general ledger and accounts payable packages on the bigger machine.

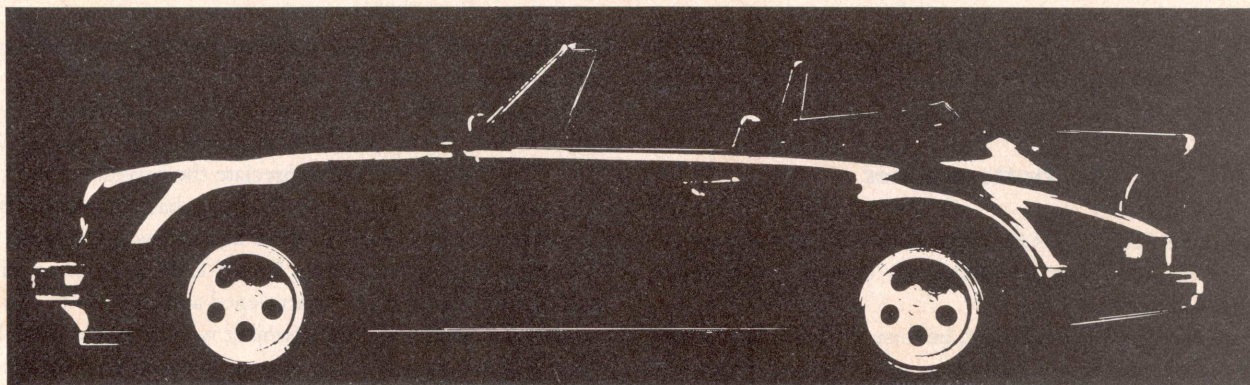
This very real scenario has occurred many times in the last few years. And it's difficult for a vendor to justify such upgrade charges when the number of people using the system—and, therefore, one of the key components of "value added"—is unchanged. Basically, the method of pricing based on cpu size makes the assumption that the computer running the software is dedicated, or almost dedicated, to this one application. That assumption, if it was ever valid, is no longer valid for general accounting software products.

The market is reacting by offloading accounting applications to smaller platforms, which not only eliminates the upgrade fee but maintains or even decreases the annual software maintenance fee. Of course, an even worse scenario for the current vendor is that the organization will consider buying a LAN, with robust LAN-based accounting packages, for less money than the cost of the upgrade. Thus, the vendors in the long run can hurt themselves by pushing too hard for upgrade fees when there is no good business reason for such action.

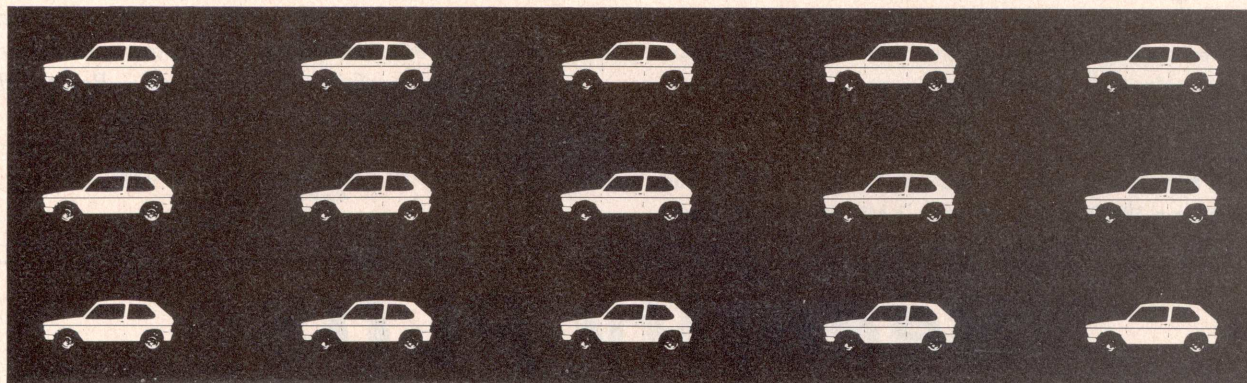
It's interesting to note that, the amount that an organization offloads their general accounting software to smaller cpus, leads the organization closer to the client-server model. Just connect the "accounting server" into a LAN that's also connected to the central minicomputer, and you have the foundation for a true client-server architecture.

You should expect to see some new pricing structures emerge for client-server versions of accounting software packages. The one that might be easiest to sell is a base price for a server (perhaps still based on cpu size, but much lower than the current price) and a separate (and also lower) price for each client using the system, that allows for shared processing. The biggest fear the vendors have is that any restructuring of pricing can be a "bet your company" proposition, in the sense that

IN ORDER MANAGEMENT SOFTWARE:



THERE'S CUSTOM.



THERE'S CANNED.

If you think it costs a fortune to have software tailored to your company's exact sales and purchase order requirements, think again. Cardinal's unique approach to order management gives you the fit and functionality of a custom solution for about the price of a canned package. The secret: the Cardinal Configurator, an exclusive architec-

ture that lets you specify, in detail, an unlimited number of order types and how each is processed. If your needs change, your systems can change with them—with no reprogramming.

Why settle for a canned solution? Or spend a fortune on custom? Call Cardinal. And get the best of both worlds.

AND THERE'S CARDINAL.



Cardinal Data Corp., 75 Second Avenue, Needham, MA 02194 • (617) 449-0066

Distributors: Toronto/Montreal (416) 844-9947 • Los Angeles (714) 554-1551

• Melbourne/Sydney (03) 874-3633



INTEGRATED SOFTWARE FOR: ORDER MANAGEMENT • PURCHASING • INVENTORY • RECEIVABLES • PAYABLES • GENERAL LEDGER

CIRCLE 153 ON READER CARD

if they aren't careful, they may find themselves in a cashflow bind. Obviously, customers of accounting software don't want this to happen anymore than the vendors do.

The Bottom Lines

THERE ARE SEVERAL conclusions you can make about client-server computing in the HP world at this time:

- Client-server looks promising, because it makes good sense to get the maximum benefit from existing computing resources.

- It is bringing new accounting software vendors to the HP market. With new vendors arriving, the HP community will have more options to choose from, thus making the choice to buy HP even more attractive.

- We should see a large number of client-server offerings from all categories of software vendors, to the extent that the accounting vendors are representative of all vendors.

If you're convinced that client-server computing makes sense, but you're now working with a central minicomputer connected to terminals and PCs with communications software, what should you do to prepare for the future? First, as you replace each terminal or older PC, be sure to do so with at least a PC running a 386SX processor with 2 MB of memory and a

40-MB hard disk. The price difference between this kind of PC and a new terminal is very small.

Next, get a copy of Microsoft Windows 3.0 for one of your PCs, as well as a word processor and a spreadsheet that use Windows. You'll soon begin to appreciate the benefits of the common user interface afforded by Windows-based applications and the ease with which you can share data across applications.

Last, if you don't currently have a LAN, consider getting a small one for one of your departmental applications. In this way you can start getting generally familiar with networking, its benefits for an organization and how a network can fit into the overall design of your computing environment.

The sooner you get started learning about client-server computing, the better prepared for it you'll be. Just as minicomputers changed our world in the 1970s and PCs revolutionized computing in the 1980s, client-server computing will be a strong force in the 1990s. The reason is that it provides the power of the mainframe, the integration of the minicomputer, and the flexibility of the PC—everything needed to realize the vision of organization-wide information integration.—*Robert Shelley is president of Highgate Financial Systems in Berkeley, CA.*

Would you like to continue to see articles on this topic?

Circle on reader card
yes 344 no 343

Security PLUS

Is your company's investment protected?

- | | |
|----------------------------|---|
| + Password Encryption | + Interface with MPE |
| + User Auditability | + Password Aging |
| + Device Passwords | + Remove Passwords from Job Streams |
| + Control Users thru menus | + Multiple Parameters to Control Access |
| + Eliminate UDC's | + Easy to Use |

Call or write us for a **free** demo and find out how you can secure your system and increase productivity — today!

Unified Software Systems

6551 Loisdale Court, Suite 400
Springfield, Virginia 22150-1854
(703) 922-9800

USS Marketing, Inc.

5666 La Jolla Boulevard, Suite 8
La Jolla, California 92037
(619) 454-8441

USS Unified Software Systems

a Division of Unified Industries Incorporated

CIRCLE 142 ON READER CARD

Advanced Business Microsystems
15615 Alton Pkwy., Suite#300
Irvine, CA 92718
CIRCLE 362 ON READER CARD

ASK Computer Systems Inc.
2440 W. El Camino Real
Mountain View, CA 94039-7640
CIRCLE 361 ON READER CARD

Assured Systems Inc.
984 North Broadway
Yonkers, NY 10701
CIRCLE 360 ON READER CARD

Cardinal Data Corp.
75 Second Ave.
Suite 200
Needham, MA 02194
CIRCLE 359 ON READER CARD

Cognos Corp.
67 S. Bedford St.
Suite 100E
Burlington, MA 01803-5164
CIRCLE 324 ON READER CARD

Collier-Jackson Inc.
3707 West Cherry St.
Tampa, FL 33607-2596
CIRCLE 358 ON READER CARD

Computer Associates International
711 Stewart Ave.
Garden City, NY 11530
CIRCLE 357 ON READER CARD

Dun & Bradstreet Software
550 Cochituate Rd.
Framingham, MA 01701
CIRCLE 326 ON READER CARD

InfoCentre Corp.
7420 Airport Rd., Suite 201
Mississauga, Ontario L4T 4E5
CIRCLE 356 ON READER CARD

JYACC Inc.
116 John St.
New York, NY 10038
CIRCLE 355 ON READER CARD

Lawson Associates Inc.
1300 Godward St.
Minneapolis, MN 55413
CIRCLE 354 ON READER CARD

MCBA
425 West Broadway
Glendale, CA 91204-1269
CIRCLE 353 ON READER CARD

Microsoft Corp.
One Microsoft Way
Redmond, WA 98052-6399
CIRCLE 352 ON READER CARD

Mitchell Humphrey & Co.
11720 Borman Dr.
St. Louis, MI 63146
CIRCLE 351 ON READER CARD

Multiview Inc.
One Antares Dr., Ste. 550
Nepean, Ontario Canada K2E 8C4
CIRCLE 318 ON READER CARD

Oracle Corp.
2929 Campus Dr., Ste. 200
San Mateo, CA 94403
CIRCLE 319 ON READER CARD

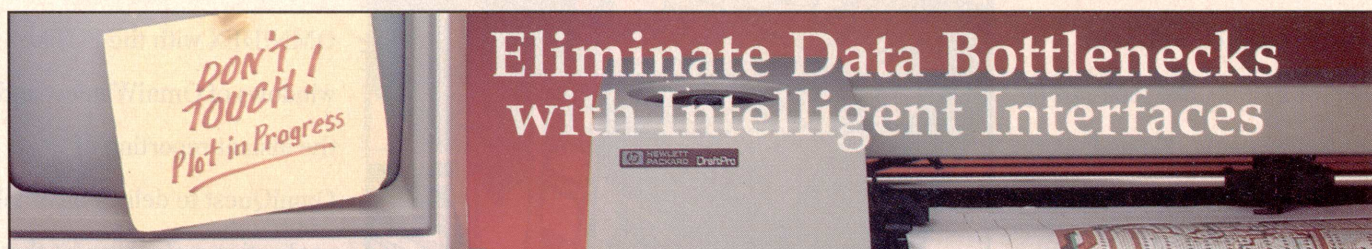
Powersoft
70 Blanchard Rd.
Burlington, MA 01803
CIRCLE 327 ON READER CARD

Ryan McFarland
8911 Capital of Texas Hwy N.
Austin, TX 78759
CIRCLE 325 ON READER CARD

Smith, Dennis & Gaylord Inc.
3211 Scott Blvd.
Santa Clara, CA 95054-3078
CIRCLE 320 ON READER CARD

Software Systems Technology
305 Broadway 4th Fl.
New York, NY 10007
CIRCLE 321 ON READER CARD

Sotas International
192 Merrimack St.
Haverhill, MA 01830
CIRCLE 322 ON READER CARD



Eliminate Data Bottlenecks with Intelligent Interfaces

HPiB Buffers

MicroPlot 80 Series
free HP CAD/CAM/CAE work stations from time-consuming data output. Greater than 10:1 improvement in computer utilization.

- Expandable 256K - 8 megabyte memory
- Multiple copy & plot queuing eliminate delays
- Full status monitoring
- Prices start at \$895

MicroPlot 70 Series
Ideal for large printing or small plotting applications.

- Expandable 256K - 1 megabyte memory
- Plot queuing, pause, copy and purge functions
- Prices start at \$795

RS-232 Buffers

MicroPlot 55A Series
free 286/386 PC workstations. Same features as the MicroPlot 80/70 Series plus:

- Supports all popular hardware/software protocols
- Baud rates up to 115Kbaud
- Prices start at \$995 (1 MB)

Programmable Serial Card
Allows baud rate to be set & locked to overcome DOS & application software constraints. \$59 when ordered with 55A Series.

Memory Boards for HP

- 100% compatible w/HP boards
- Easy snap-in installation

HP200/310/320 SERIES
1 - 8 Mb: \$495 - \$1695

HP340 SERIES
4 Mb: \$995


GPiB-1000 - \$219
IEEE-488 interface card for PCs and compatibles.

HPiB ↔ Centronics Converters

MicroPrint 45 Series
Has become the industry standard to reliably interface Centronics printers with HP computers (45C), or HPiB peripherals to PCs (45H).

- No programming needed
- Transparent to operating system
- Switch selectable HPiB address/Listen Always
- \$259 includes parallel cable

Call 800-842-0888



**INTELLIGENT
INTERFACES Inc.**

P.O. Box 1486 • Stone Mountain, GA 30086-1486
• USA • 404-381-9891 • in Canada contact:
Eurodata, 613-745-0921, FAX 613-745-1172

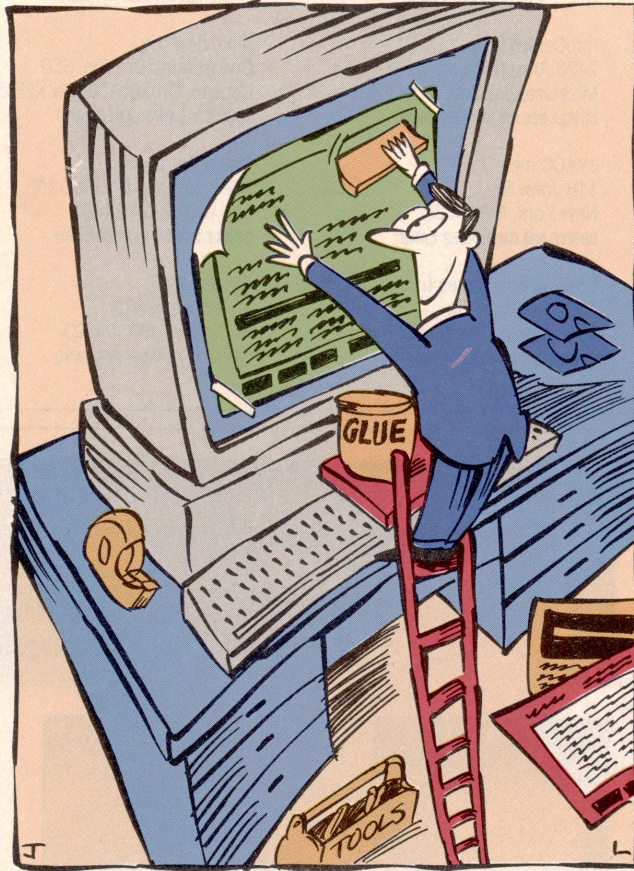
High-power HP and PC users shouldn't have to wait for output or be restricted in choice of peripherals. Allow us to be your single source for cost-effective interfaces. With each product comes a one-year parts and labor warranty AND 30-day money-back guarantee. 24-hour service is standard.

Introducing the Do-It-Yourself Application Remodeling Kit

Your applications have served you well over the years. The software is proven and reliable. Your users are at home with the programs.

But... There are still things you just can't do with your current system. No look-ups by non-keyed fields. No on-line reporting. No PC-like features like windows or multi-tasking. But who has the time, tools or budget for such a major overhaul?

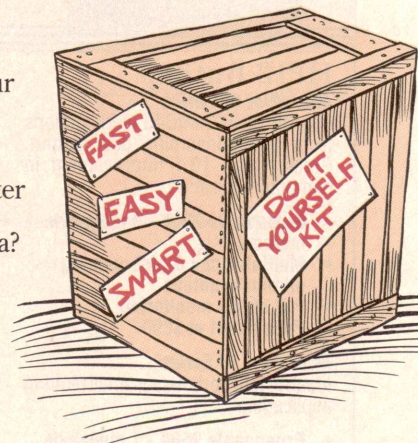
What if you could remodel your existing applications overnight to add PC-like retrieval windows and hot-key task switching on standard HP terminals? What if you could add incredibly fast on-line reporting in 30 minutes or less? What if you could customize command and help menus for your users in less than an hour? And what if you could do it all without taking a big bite out of your DP budget?



Introducing OMNIDEX On-Line. For Do-It-Yourselfers With No Time To Spare.

OMNIDEX On-Line combines the keyword retrieval power of OMNIDEX with the PC-like windows of OmniWindow and the instant reporting of OmniQuest to deliver a complete application make-over kit that can be installed in a morning. No hand tools or programming changes required.

Step One: Look at your databases. Which ones need better access or faster reporting? Customer data? Inventory? Accounts receivable? Orders? Vendors?

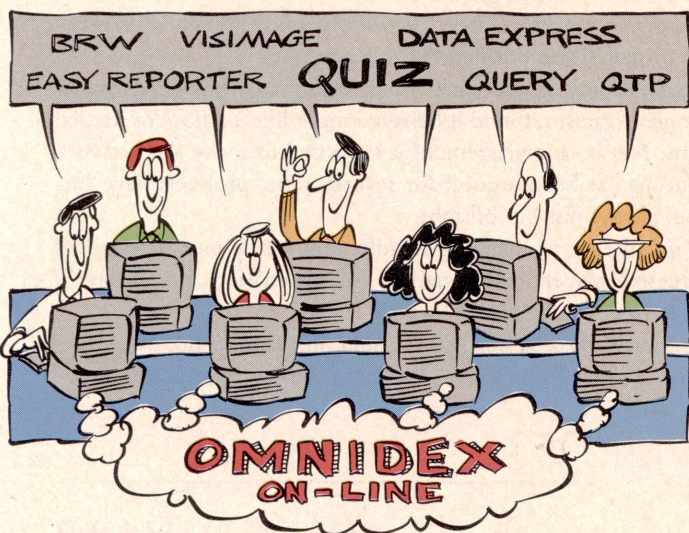


Step Two: How do your users want to look up data? By name? Company? Address? Transaction amount? Date? Index these fields with OMNIDEX and records can be instantly retrieved by any combination of words or values contained in those fields.

Step Three: OmniWindow will now build retrieval windows for each database you've indexed. If you wish, you can quickly customize the retrieval windows to meet the needs of specific applications and users. You can also use OmniWindow to create customized help screens.

Step Four: List the various programs and screens that your users access frequently. Add them to the Task Manager window and let your users hot-key between screens and applications with a single key stroke.

Step Five: What report writers do you use? QUIZ? BRW? Inquizitive? Query? Add OmniQuest for incredibly fast record selection and true on-line reporting with your existing report writer. If you're using Easy Reporter, Data Express or Visimage, simply hook up their OMNIDEX interface and you're on your way.



Remodel your Applications Without a Second Mortgage

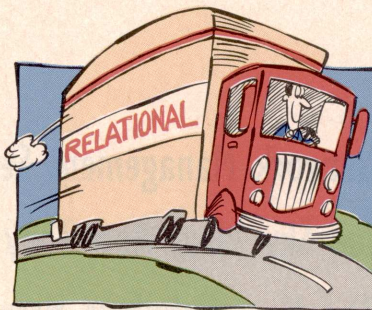
Not only did you make your users more productive with instant, on-line access to any data they need, but you did it in a morning, and you did it for a fraction of the cost of an application rewrite.

You saved programming time.

You saved CPU overhead. You saved disk I/O. And you saved big software bucks. Pretty smart!



Thinking about moving to relational in the future? We'll provide the moving van.



Now you want the other good news? If you're thinking about going relational, so is OMNIDEX. Within the year we'll be running on

UNIX and relational databases with the same windows interface and instant retrieval. Performance gains are just as spectacular on relational databases as they are on IMAGE. So you can rest assured that the investment in remodeling today will continue to pay off when you move to your new neighborhood.

OMNIDEX On-Line. Business Solutions for the 90's.

For more information, call DISC at (303) 444-4000.

OPENVIEW

M A D E C L E A R

HP's Comprehensive Network Management Services—
Once Considered A Blue Sky Idea, Now They
Shed Light On Even The Most Nebulous Networks

N

etworks grew up piecemeal during the '80s, formed from those wonderkluge appendages that hardware vendors sold you to turn a tidy profit while making it barely possible for you to strap all your boxes together. Unless, of course, you worked with one of those nifty network niche suppliers who carved out a slick piece of the market and left the rest untouched. Which-ever route you chose, the solution probably was both partial and proprietary.

The fun started when our support friends in the back room, trying to make the growing network octopus function like a single organism, found it behaved more like a school of startled minnows scattering in all directions. Network management is supposed to make the network manageable, but although the concept has been around for several years, products have lingered somewhere over the horizon, always just out of sight.

Today the network management picture is changing rapidly, and HP is on the verge of becoming a dominant and constructive player in the market. HP OpenView is a family of products which, if we believe the experts, is overdue.

The problem in today's networking market is not what simple office LANs do, but rather what complex commercial networks do—and don't do. One thing they do, you see, is occa-

BY BILL SHARP

You'll probably spend the next ten years with your financial software. Spend a minute reading why it should be Mitchell Humphrey & Co.

In financial software, as in everything else, you get what you pay for.

Remember, the price of the software is only a fraction of your total investment. And while you may be tempted to save a little money up front, a "bargain" can quickly become a burden. In time and money.

If you spend all your time working around the software instead of with it, is it really a bargain?

MH&Co. is not the cheapest. We believe flexible software that continues to meet your needs for many years is worth what we charge for it. *As is the trouble-free installation and responsive, knowledgeable support.* We think you'll agree.

Like the proverbial bargain, acquiring software from a "big name" vendor

may seem attractive. But all too often, you find these vendors got big from dealing in quantity, not quality.

Keep in mind vendor size and familiarity do not guarantee satisfaction.

MH&Co. is not the biggest. We do one thing and do it well. We develop financial management systems. And in 12 years we have built a hard-earned reputation as an industry leader.

MH&Co. is not the cheapest. Nor the biggest. *Simply, the best.* So if you are going to spend the next ten years with your financial software, which would you prefer: a bargain or the best?

Take another minute to find out more about our software. Call Ken Benvenuto at 1-800-237-0028. Or write us at 11720 Borman Drive, St. Louis, Missouri 63146.

MITCHELL HUMPHREY & CO.

Exceptional Software for Exceptional Organizations

sionally fail. In other words, networks don't always do what they're supposed to. Amidst all those complex cross-platform communications, things simply go wrong, and finding those things can be excruciatingly difficult—so the network managers say.

"In a multivendor environment, each supplier has its own proprietary set of network management tools for hubs, bridges, routers and other networking components," says Larry Robinson, DME program manager at HP's Colorado Networks Division, Fort Collins, CO. "Network administrators are sitting around a big table with all these output devices from 14 different network management tools, and it's more than they can keep up with." What HP and several other network management suppliers are touting these days are new products that purport to provide a single, standard portal through which to view all the network management solutions they may require.

IBM gets credit here for being the first to sound the alarm, crying out in 1986 that network management was getting out of control, and offering its own product, NetView, to quell the disturbance. Unfortunately for Big Blue, users had a tough time getting a grip on just what network management was going to do that was worth a lot of their money. The perceived need was below the market's threshold of pain.

For a while network management went begging, says Howard Hecht, program director for Enterprise Network Strat-

egies at The Gartner Group, Stamford, CT. "Nobody made any money at it. Network management has been a long-term strategic gamble and a sinkhole of R&D dollars."

Enter HP OpenView

THIS IS A STRATEGY HP has tried many times: Ask the customers what they want and when they look confused, engineer it carefully and watch them buy it. What's different in the case of OpenView is that HP has learned from its earlier stumbles and is reacting rapidly, delivering effective products that fully embrace standards. HP followed up by working to get industry-wide support for its offerings. As a result, today OpenView appears to be the network management platform of choice.

"Nobody expected that HP would come up with a product that is technically one of the two or three best," says Hecht. "Nor did they expect that HP could effectively market OpenView outside its own customer base. HP has taken a concept and productized it and is allowing vendors to start developing products to work with it. It is a technically superior product, and it is easy to develop software on OpenView, so vendors can port to other platforms. You can buy it today on HP, Sun, and in the very near future, on the IBM RS/6000. It is a true multivendor product."

Here are the major OpenView terms and what each means: **OpenView Network Management Architecture**—This is not a product, but a conceptual framework, a model for the creation of object-oriented, standards-based network management products. This isn't blue smoke and mirrors, but neither is it a deliverable product with an order number and a price. Think of it as a road map.

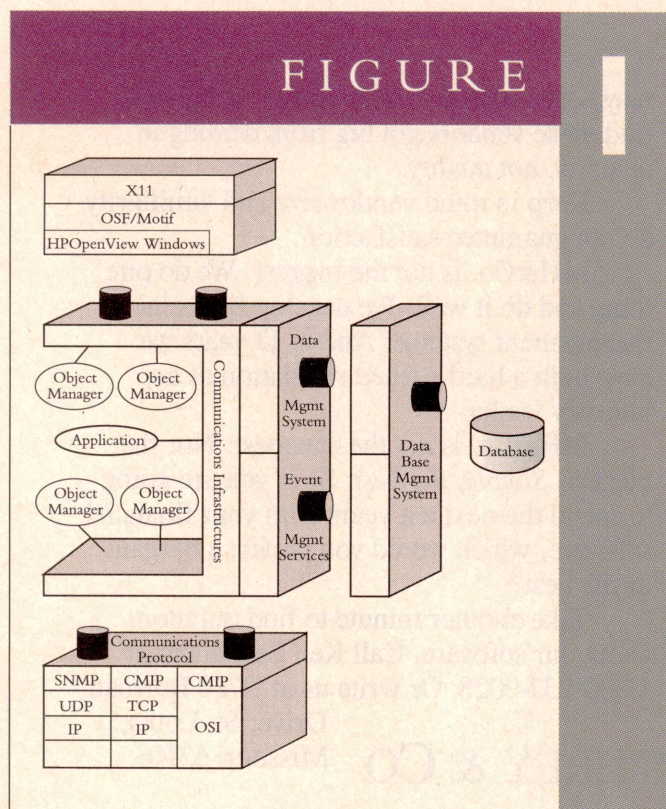
OpenView Network Management Server (NM Server)—This is a set of basic network management services designed to act as an open systems platform for specific network management applications software. It is also the core of HP's submission to OSF in the joint HP/IBM proposal for an industry standard DME (more on this later). If you as a user want your own unique network management application, this is the foundation for your work. It is also the development platform for independent software vendors. OpenView NM Server includes several components (also see Figure 1):

- Communications protocols include implementations of SNMP and the Common Management Information Protocol Over TCP/IP (CMOT).

- Communications infrastructure is the OpenView Application Programming Interface (API) to provide access to all management services and protocols, including SNMP, CMOT and later CMIP over OSI.

- Event management services provides a central point to generate, receive, route and log network events such as failures, object state changes and security violations.

FIGURE



OpenView Network Management Server:
The network puzzle has many pieces.

What's different in the case of OpenView is that HP has learned from its earlier stumbles and is reacting rapidly, delivering effective products that fully embrace standards.

- Data management services organizes data access to protect the application developer from the need to know data storage details. It eliminates the need for a data storage subsystem.

- OpenView Windows uses OSF/Motif as the graphical user interface for the system. This provides a consistent programming interface for application development.

- OpenView NM Server lists at \$5,000 for a single user and \$25,000 for the software developer version.

OpenView Network Node Manager (NNM)—A specific network management application optimized to provide fault, configuration and performance network management for multivendor Transmission Control Protocol/Internet Protocol (TCP/IP) or Simple Network Management Protocol (SNMP) networks.

NNM does some nifty things to make the network management job easier, including:

- Automatic discovery, which finds and identifies all the devices on the network regardless of vendor, and updates them when status changes.

- Single-view management to allow user-developed or third-party applications to be integrated into the system. This means any network management applications can be accessed through OpenView NNM. This might save on desk space.

- Dynamic data collection allows NNM to make use of MIB data from devices on the network (see MIB discussion below).

- Application builder is a tool to help build applications around SNMP devices without programming.

OpenView NNM lists for \$15,000.

OpenView System Manager—This is a PC-based product for monitoring and managing multiple networked HP 3000 systems from a central point. The system manages HP 3000 systems over an NS network and runs on top of OpenView Windows. System Manager notifies the operator when problems defined by the operator arise. OpenView System Manager lists for \$1,500.

OpenView Windows—Here is the original OpenView prod-

uct, introduced in 1988 as a PC platform for network management applications. System Manager runs on top of this. OpenView NM Server is a greatly souped-up version of this product.

OpenView Hub Manager and OpenView Bridge Manager—Both of these products are PC-based managers of the items their names imply. Both sit atop OpenView Windows.

OpenView Interconnect—This product is a \$2,000 add-on to OpenView NNM that allows that product to look after bridges, routers and hubs.

OpenView Datacommunications and Terminal Controllers (DTC) Manager—A counterpart to the NNM, also based on TCP/IP communications. It runs on a PC, from where it keeps tabs on terminal networks.

LanProbe—Unlike the rest of the family, this product is not solely software, but is a hardware/software hybrid. LanProbe is permanently installed at sensitive points on a large network to proactively collect data on the behavior of all devices on the network. This is particularly helpful in keeping tabs on network components that don't adhere to industry standards. LanProbe can analyze the behavior of these nodes and relay the information to other OpenView products that would otherwise be unable to determine how the non-standard nodes are behaving.

LanProbe capabilities are being integrated into the OpenView family as the family and its capabilities grow. HP's diagrams now routinely show LanProbe sitting out there on the network, gathering data. And a new addition to the SNMP standard will make this end of the game even more open. This month at Interop, you can see the first implementations of RMON MIB, an acronym to curdle your milk. It stands for Remote Network Monitoring Management Information Base.

LanProbe product manager Mark Hoerth of HP's Intelligent Networks Operation, Palo Alto, CA, says the new standard allows compliant network management products such as OpenView to interoperate with compliant network instrumentation products from other vendors. Second, RMON MIB provides "a vast increase in functionality for network measuring devices," says Hoerth. He calls the capabilities the next generation of functionality for network measurement. These new RMON MIB capabilities will include an Ethernet traffic matrix, more alarms and thresholds, more error counters, more historical trends capabilities and more packet filtering.

OSF's DME Software Card Cage

HP IS GETTING THE upper hand in the standards game, and the best evidence yet may be the OSF DME. The Open Software Foundation asked for technology for use in an industry standard Distributed Management Environment and HP made some very effective political moves. As a result, HP and IBM teamed up to offer an OpenView-based

proposal that has since gathered a lot of support. As of this writing, the OSF jury is still out, but the betting has been rather heavily in favor of HP. Why?

"We worked hard to make our submission do what OSF wanted," says HP's Robinson. The offering uses HP OpenView NM Server coupled with IBM systems management technology, object-oriented user interface and system resource manager. Tivoli Systems, Austin, TX joined the group, contributing object management technology. NCR also added its object manager technology, particularly useful for pulling in DOS. Groupe Bull and HP cooperated on a management API that already has been adopted by X/Open. Finally, HP offered to integrate Siemens Nixdorf's global directory service based on X.500 and its OSI protocols, both already adopted by OSF as part of the DCE.

"The exciting part of DME is that it is kind of a "future-proof" platform that will be extendable to accommodate new technologies as they come out of the standards bodies," says Robinson. "This includes new services such as inference engines or an artificial intelligence environment that can decide what actions need to be taken for hands off management of distributed environments. There's a whole range of capabilities that could readily be integrated into the DME platform."

"We call it a software cardcage," says Robinson. It isolates the network management applications environment and makes it very easy for developers to come up with more. And the applications they have written don't have to be rewritten. It will make some very dramatic changes in the market."

HP is saying the right things about DME. At the time this article was written, it still didn't know if its proposal would become a major part of the DME. But just as with the DCE proposal, it has stated clearly that it will support the standard, whatever technology OSF chooses.

Gartner Group's Hecht has little doubt about the outcome of OSF's decision. "HP and IBM's joint submittal will be the big winner," he says. "DEC was the closest competition, but the cast of characters HP has lined up far exceeds that of DEC." He is certain the DME choice will result in a "substantial increase in HP's share of market" for network management.

Dances With Blue

COMPETITION IN NETWORK MANAGEMENT has changed substantially. IBM was the first to speak of the need, then came HP's first so-so offering, then Sun started signing up customers with limited systems and DEC began marketing solutions for not very open systems. Lots of third parties took a sniff at the promising market but without many tangible results. Finally, HP re-emerged with strong strategy and technology.

We have a market in network management that is still so ill-defined that market research types fear to say who owns what

portion of it. HP's Robinson guesstimates HP at 25 to 30 percent, but adds that he expects DME to stimulate a dramatic increase. "We will beat other people to the market," he says.

Is this just fluff? Perhaps not. One of the outfits impressed with what HP has to offer in OpenView is Big Blue itself. IBM agreed to license HP OpenView NM Server as the basis for its own revised family of network management products. IBM will integrate OpenView with its own SystemView, which seems only natural since the names imply that they are related anyway. The underlying framework for both products will therefore be identical, says Robinson, making them interoperable.

HP can well afford to relax and enjoy IBM success with SystemView—part of each sale goes straight to HP. Robinson implies that further cooperation between Big Blue and Medium Blue is likely.

If Ever I Would Buy This . . .

BEFORE CINDY'S COMPANY BOUGHT an expensive network management product, she sat at her desk and used her computer every day. After the new network management product was installed and running smoothly, Cindy still sat at her desk and used her computer every day. This is the crux of cost justification for network management—most users don't perceive the need. The network either works or it does not work. Why shell out shekles?

Being a clever outfit, HP commissioned an outside consultant to complete a study of typical network management environments from company-wide down to the department level, looking at labor and administrative costs. "We have more than 300 different network management tasks identified, including how long network managers sit at their computers and the different types of equipment used," says Carol Crall of HP's Colorado Networks Division, who managed the project.

"We have an extremely complex set of spreadsheets that calculate what a customer can save, so they can decide if network management makes sense or does not for their situation," she says. "We can show in your environment what integrated network management can do for you. And we are committed to keeping our model up to date as the market changes."

OpenView Program Manager David Schwaab of Colorado Networks Division, Fort Collins, CO, expects the future direction of OpenView to be the integration of multivendor network management tools to provide better tie-ins for integrated software vendors and systems integrators.

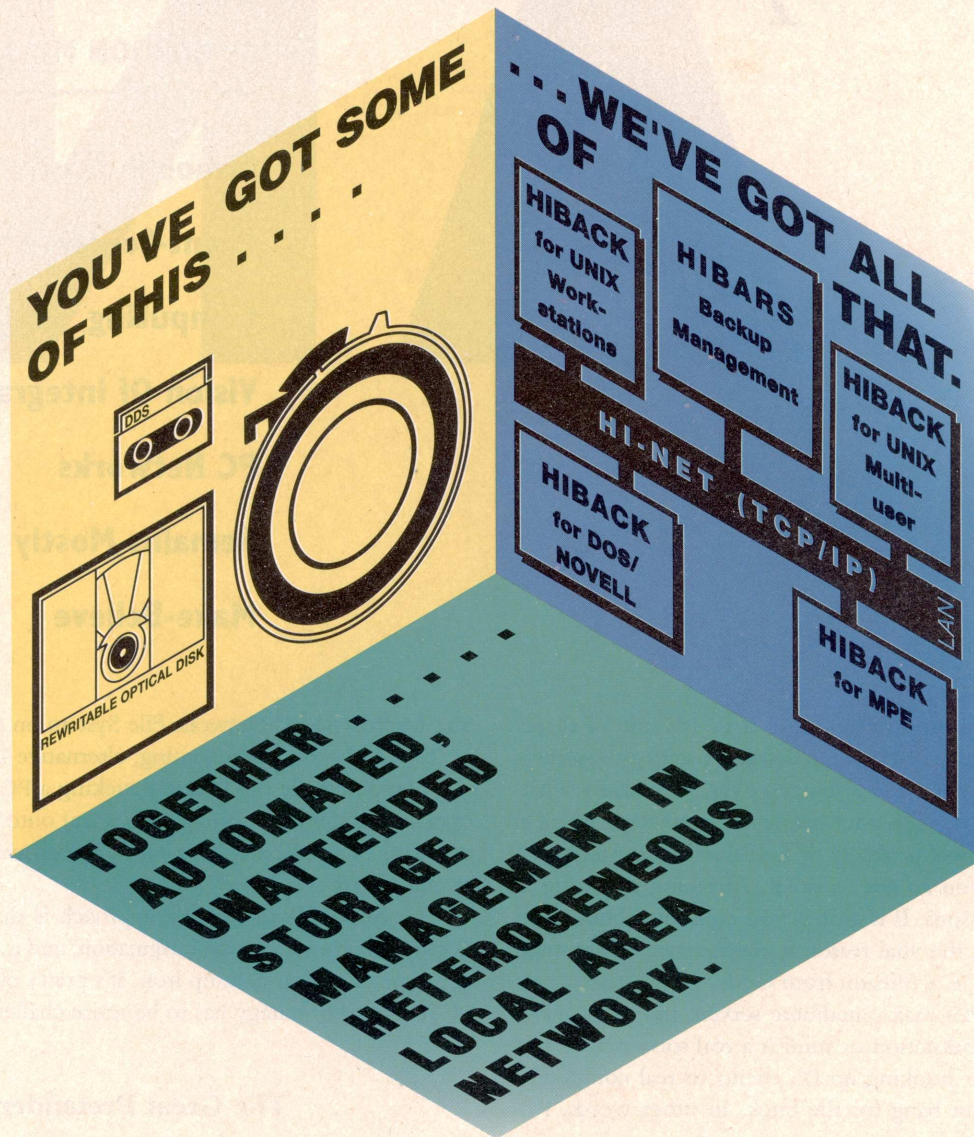
Developments unfolding this fall will help determine whether HP's efforts will result in just a new family of network management products, or move the industry further along the road toward HP's vision of a computing Camelot.

Would you like to continue to see articles on this topic?

Circle on reader card

yes 348 no 347

HI-COMP SOFTWARE PRODUCTS BACKUP, ARCHIVE AND RETRIEVE PCs, WORKSTATIONS AND MULTI-USER MACHINES IN A LOCAL AREA NETWORK.



FOR MORE INFORMATION AND FREE DEMOS PLEASE CONTACT

USA

HI-COMP America Inc.
419 Canyon Avenue
Suite 215
Ft. Collins, CO 80521-2670
Tel: 303 224 9700, Fax: 303 224 9702
US Toll-Free 800 323 8863

H · I · C ·  · M · P
AMERICA INC.
THE INNOVATORS™

WORLD-WIDE

HI-COMP Hinrichs GmbH
Eichenlohweg 24
2000 Hamburg 60, Germany
Tel: 040 630 40 11, Fax: 040 631 60 04
UK Toll-Free: 0800 89 85 01
French Toll-Free: 1905 90 40 13

CIRCLE 120 ON READER CARD

Fantasy

LAN

BY GORDON MCLACHLAN

**Although Crucial To
Client-Server
Computing, The**

**Vision Of Integrated
PC Networks**

Remains Mostly

Make-Believe

Integrating PCs sounds tough, and it is. It's one of those deals where you have to go and develop a strategy — something you administrator types lose sleep over. You know what it means: You've got to risk your career and your department's budget on stuff that will probably be available in six months.

Unfortunately, you've got to do it. Anything requiring a strategy has vital reasons. If it didn't, you could just bluff your way through. Here, the vital reason is client-server computing — an irresistible force, a mission from God.

Unfortunately, PCs make mediocre servers and your average “real” UNIX workstation or mini is a real sorry excuse for a client. That means hooking up PC clients to real computers if you want the most bang for the buck. In other words, PC integration.

The key to developing a PC integration strategy is a good imagination. Integrating PCs means you have to pretend a lot. For instance, you can pretend your PC is a terminal. This is the easy way out. By using some Telnet and X Window PC software on a TCP/IP link, you can be as happy as a lobotomy patient. It's only vaguely client-server, but if you have a slick-enough user interface, you can fool most of the rubes.

Another approach is to pretend your PC is a little UNIX machine. With the proper client software, you can bend that sucker to your will and make it use File Transfer Protocol (FTP) or

Sun Microsystems' Network File System on a UNIX server.


The final, and most exciting, alternative is to pretend your real computers are big PCs. By sticking a PC-derived network operating system (aka Novell Netware) onto one of your servers, your PCs can be as brain-dead as they want to be, and still be integrated.

The trouble with the first approach is that it's too easy. It doesn't require very much imagination, and it doesn't make very good use of all that desktop iron. It's pretty obvious that a good PC integration strategy has to be more challenging.

The Great Pretender

THE OPEN SOFTWARE FOUNDATION (OSF) — the official arbiter of good taste in networking — has decreed that its Distributed Computing Environment will provide for PC integration (PCI) both by pretending real computers are PCs and vice versa. To the OSF, low-end interoperability means file- and print-serving. At the high-end, it encompasses application programming interfaces (APIs), electronic mail, remote program execution and terminal emulation.

To handle all this heavy pretending, OSF went to two competing products. Sun's PC-NFS and LAN Manager/X, which was



DataExpress ...

The #1 End User Computing Environment

Lets your users get information ...

ANY TIME

- Predefined procedures can be run from procedure libraries, by end users according to the access security without MIS involvement.
- Procedures can be created in minutes from predefined Data Views which can span data sets, files and even multiple dictionaries and databases.

ANY WHERE

- Users get information where they want it ... at the terminal, to any printer on the HP3000 or even to a slave printer. If using a PC, information can be downloaded to a popular PC format of choice, such as Lotus, Excel, Syk, Dbase, and Word Perfect Mail Merge File.

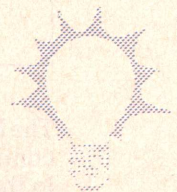
ANY WAY

- Report data to the screen or the printer.
- Create mailing labels.
- Download to popular PC/Mac file formats including Lotus (PRN, WKS, WK1), Dbase (PRN or DBF), EXCEL (PRN or SYLK), Word Perfect (Mail Merge) ... ANY WAY you want it.

DataExpress

- Works from terminals, PC's or even batch jobs.
- Allows MIS to customize the end user environment, for security and simplicity purposes.

**DataExpress -
the intelligent way
to do business!**



M.B. Foster Associates Limited

P.O. Box 580, 50 Water Street
Chesterville, Ontario K0C 1H0

Phone: (613) 448-2333

or 1-800-ANSWERS (267-9377)

Fax: (613) 448-2588

Mexico

UK

Netherlands

Sweden

52 (5) 254-3274 or 52 (5) 254-3284

44 (483) 772280

31 (2503) 40334

46 (470) 828 15

Israel

Pacific Rim

972 (3) 348938

66 (2) 538-2623

Stone.



NCD 17c X terminal.
29,000 X stones.

The HP 700/RX family of X stations continues to open up a huge lead in the X stone race.

The first family based on RISC, it's also the first to offer entry-level workstation X performance at X terminal prices. So you can run demanding X applications you'd never have considered before.

Now that you can enjoy the performance benefits of RISC at no extra cost, what are you waiting for? Because every day without RISC, you're falling further behind.

Our accelerated color models perform almost three times faster than NCD. And our monochrome X station comes in at

an astounding 90,000 X stones.

All HP 700/RX models use flicker-free monitors, with high refresh rates. You have a choice of 19" color or monochrome with 1280 x 1024 high resolution, and 16" color with 1024 x 768. In all models, we're continually adding features and enhancing functionality.

Milestone.



HP RISC X station.
~~75,000~~ X stones.
86,000

No wonder HP was recognized by Dataquest,¹ International Data Corporation² and X Business Group³ as the industry's leading supplier of color X terminals in 1990.

So call 1-800-752-0900, Ext. 2303* and meet the first family of RISC X



terminals. With these milestones, your company could go a lot further.



CIRCLE 288 ON READER CARD

Interestingly, HP is backing out of the LM/X development picture, aiming to buy whatever the Microsoft/AT&T pairing comes up with.

submitted by HP and Microsoft, have both been recommended by X/Open and included in its latest X/Open Portability Guide (XPG4). That was pretty much the reason they were selected by the OSF for inclusion in its DCE.

LAN Manager was originally developed by Microsoft and HP to enable UNIX machines to be used as servers for MS-DOS and OS/2 clients. For whatever reasons, there is currently no UNIX client module.

LAN Manager/X, like OS/2 LAN Manager, provides:

- Standard APIs for developing client-server applications.
- Comprehensive print spooling and management that include:
 - Multiple print queues for a single printer.
 - Use of multiple pooled printers for a single print queue.
 - Printer access security.
 - Time scheduling of print jobs.
 - User and administrative management of print queues and job priorities.
- APIs for LAN administration.
- Interprocess communications APIs.
 - Named pipes for bidirectional communications.
 - Mailslots for one-way communications.
- Station-to-station messaging.

LAN Manager/X also provides PC access to native UNIX files under UNIX security mechanisms and provides better server scalability than OS/2 because of the wider range of server platforms available under UNIX. LAN Manager would be a great idea, if it could only pick up a market-share percentage bigger than single-digits.

That's where NFS comes in. PC-NFS provides more primitive file-sharing and print spooling capabilities than LM/X, but it is an official de facto standard on UNIX systems. (That means it already works and has sold a lot of copies.)

Available as a public domain specification through Sun and X/Open, NFS also can be had via source-code licenses, so there are literally hundreds of licensees and more than a million NSF users out there on every conceivable platform. As a matter of

fact, NFS 2.0 clients are fully supported by DCE through its Andrew File System (AFS) distributed file system.

Is supporting both systems a contradiction? The OSF says no. By adopting both standards, UNIX workstations don't have to become LAN Manager clients, and PCs aren't forced to use NFS clients. Although the PC/workstation distinction becomes more blurred by the moment, it's a pleasant fiction that allowed a political compromise.

LAN Manager's Allure

THE QUESTION REMAINS: If NFS works, is available and is a standard to boot, why waste time and money chasing LAN Manager/X? For one thing, NFS is only a part of Sun's Open Network Computing architecture, which is a direct competitor of the DCE. That makes it somewhat of an anathema to OSF members who originally banded together for the sole purpose of screwing Sun into the ground. It's probably safe to say that OSF members won't be going out of their way to make any improvements to NFS.

LAN Manager, which Microsoft plans to integrate into its OSF- and POSIX-compliant 32-bit portable New Technology platform, not only provides more current capabilities than NFS, it has more development headroom. That is, the OSF folks want it to live.

HP has committed heavily to LAN Manager, endorsing it on all its platforms, including PCs, HP 9000 systems running HP-UX and the HP 3000 line. AT&T has incorporated LAN Manager into its StarGroup network strategy and DEC uses LAN Manager inside its PCSA product, which connects PCs to VAX networks.

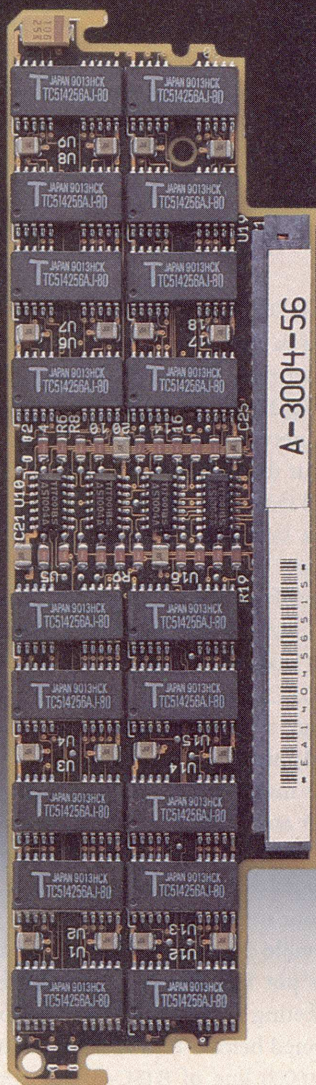
Unfortunately, Microsoft did not develop LM/X as a portable piece of code. Rather, each vendor has licensed LAN Manager software, which it has had to rewrite. Although each licensee can call its product LM/X, they have all been different, and did not interoperate completely.

The Right Choice

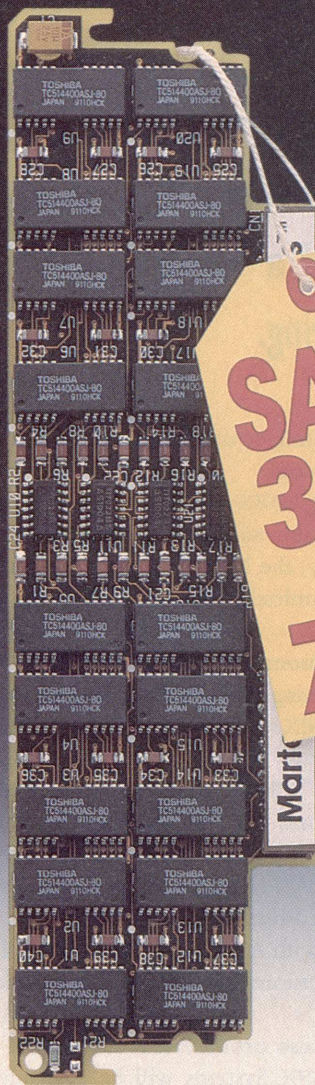
A RECENT DEVELOPMENT agreement between AT&T and Microsoft will hopefully eliminate this problem and spur application development for LAN Manager/X. Interestingly, HP is backing out of the LM/X development picture, aiming to buy whatever the Microsoft/AT&T pairing comes up with. HP claims to be perfectly happy with this arrangement. It's certainly going to be cheaper. HP will continue to support its existing LM/X 1.1 installations.

The new version of LM/X, which Microsoft and AT&T are actually calling LMU (for LAN Manager for UNIX systems), will be designed for easy portability between platforms, including AT&T's UNIX System V Release 4 and the Open Software

The only significant difference.



**HP/Apollo
Memory**



**Martech
Megamemories**



Can you tell the difference between these two boards? Neither can your computer. After all, Martech Megamemories™ are 100% HP/Apollo compatible. They're made from high-quality components, backed by a lifetime warranty and even come with a 90-day money-back guarantee.

There's just one difference between Martech Megamemories and HP/Apollo memory: the price. So if you're ready to save thousands, call (800) 582-3555 today.



Martech, A division of Martinsound, Inc., 1151 W. Valley Blvd., Alhambra, CA 91803-2493
Phone: (800) 582-3555 or (818) 281-3555 • FAX: (818) 284-3092

HP and Apollo are registered trademarks of Hewlett Packard.

CIRCLE 220 ON READER CARD

**Portable Netware,
which is aimed at the same
32-bit market as LM/X,
is not anybody's idea
of a standard platform,
but it has a massive
installed base and a
big vendor following.**

Foundation's OSF/1 operating environment, which also includes non-UNIX operating systems.

In addition to bringing UNIX versions of LAN Manager together, the new product also will address interoperability with the OS/2 and, presumably, the New Technology versions, and will "interact virtually seamlessly" with them, according to the companies.

AT&T and Microsoft promise that "most" of the LAN Manager application programming interfaces and features will be the same for the OS/2 and UNIX versions. According to a Microsoft spokesman, that means that "for the client application, there won't be any differences." Platform differences may affect the timing of the OEM versions, but will not affect client application development at all. AT&T and Microsoft will develop an OEM Adaptation kit for LAN Manager built on the UNIX System V Release 4 platform. Porting the code will be the responsibility of the OEMs, but both AT&T and Microsoft will be able to directly sell end-user versions and value-added enhancements of the product.

Microsoft and AT&T also promise that subsequent releases of LAN Manager for UNIX Systems will be available in the "same time frame" as the OS/2 versions. New versions of LAN Manager will be influenced by input from users, independent software vendors and the Open LAN Manager council, which was formed by 24 LAN Manager OEMs in April.

The first version of LAN Manager for UNIX Systems will be Release 2.0, to be delivered in late 1991. This version will have the features of the current Microsoft LAN Manager 2.0 for OS/2. Current implementations of LAN Manager for UNIX, including those from AT&T and HP are stuck at version 1.1.

Additional features included in OS/2 LAN Manager 2.0 include:

- Beefed-up file security.
- Login scripts that can be shared between users.

- Resource usage audits and reporting.
- Improved performance via use of an I/O subsystem, rather than having LM handle all the network I/O.
- Subdivision of LM networks into management domains, or groups of servers, that can be administered as a single entity. Managing servers in groups greatly simplifies administration.
- Disk Mirroring and Disk Duplexing.

Version 2.1 will reportedly add support for Apple Macintosh clients, dial-in support, TCP/IP hooks and NetWare connections. No delivery date has been announced for this product under any O/S.

NetWare: The De Facto Factor

IBM, SO FAR, HAS BEEN silent on the issue of LM/X, owing in part, no doubt, to its ongoing artillery duels with Microsoft. IBM and Microsoft had previously promised to bring Big Blue's divergent OS/2 Extended Edition and the LAN Server network into line with standard OS/2 and LAN Manager, but the disintegrating IBM/MS partnership seems to have scuttled that concept.

This brings up a nasty little issue. What about Novell's NetWare?

Portable Netware, which is aimed at the same 32-bit market as LM/X, is not anybody's idea of a standard platform, but it has a massive installed base and a big vendor following. HP, IBM, DEC, Data General, NCR and Unisys are all on the NetWare server bandwagon, and it already supports DOS, OS/2 and Apple Macintosh clients.

This installed base, coupled with enhanced hooks into TCP/IP, SNA and OS/2 have made NetWare a contender. With half of the LAN OS marketplace in its pocket, but no backing from the standards bodies, Novell is in a strange position, but may come out smelling like a rose.

Portable NetWare is OS- and platform-independent. Even HP has put Portable NetWare on the 3000, and Innovus, Inc. is marketing it with HP's blessing for the HP-UX platform. As mentioned before, IBM also has endorsed Portable NetWare for its RS/6000 line of RISC-based workstations. With no public show of enthusiasm for Microsoft or LM/X, IBM's motives are unclear.

A bit of imagination might let you forget that NetWare doesn't have all the fancy APIs and pipes and things that make a DCE, but it makes a fine file server.

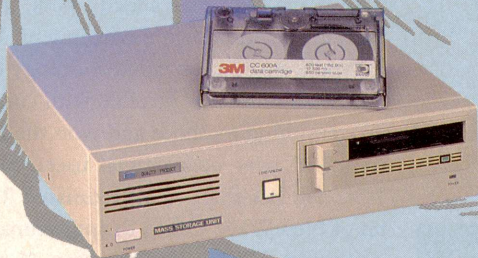
With a little more imagination, maybe you can just pretend that LM/X and the DCE don't exist and that NetWare is the standard. It's been done before and it'll be done again.

Remember, it's all just make-believe. —Gordon McLachlan is a consultant for National Tech Team in Detroit MI.

Would you like to continue to see articles on this topic?
Circle on reader card
yes 340 no 339

THE POWER BEHIND

We have over 10 years of experience in designing mass storage devices for the HP platform.
We have a full range of other HP enhancement products such as Memory Cards, High Capacity Winchester Disks, Optical Juke Boxes and High Capacity Tape Drives.



QIC Cartridge Tape Drive for HP9000 Family

The ISA 5040 Series of QIC Cartridge Tape Drives with the maximum storage capacity of 150MB supporting HP-IB and SCSI interfaces was designed for the latest series of HP9000 800/700/400/300 workstation platform.

The QIC format is an established tape format widely used by other UNIX based workstations. The ISA 5040 Series provides an economical tape backup solution for HP users with the added advantage of media compatibility with UNIX based workstations.

Head Office:

ISA CO., LTD. Japan. 1-1-5 Sekiguchi, Bunkyo-Ku, Tokyo 112 Japan
Tel: 81-3 (5261) 1160 Fax: 81-3 (5261) 1165

Branch Office:

ISAHK CO, LTD. (Hong Kong) Tel: 852-3674877 Fax: 852-3696943
EURISA (France) Tel: 33-1-48-61-48-95 Fax: 33-1-48-61-49-06
TEXAS ISA, INC. (U.S.A.) Tel: 713-493-9925 Fax: 713-493-2724

Dealers:

COMPUTHECHN AG (Switzerland) Tel: 41-71-42-64-64 Fax: 41-71-42-64-55
SEDASIS SA (France) Tel: 33-98-41-70-90 Fax: 33-98-41-66-33
HCS GmbH (Germany) Tel: 49-40-550-10-75 Fax: 49-40-559-14-86
KINGDOM PTY LTD. (Australia) Tel: 61-2-451-8131 Fax: 61-2-451-8131
AMTEK (U.S.A.) Tel: 714-394-4535 Fax: 714-394-4538
PERIPHERALS (U.S.A.) Tel: 714-540-4925 Fax: 714-540-2026

CONCORDE TECHNOLOGIES (U.S.A.) Tel: 1-800-359-0282 Fax: 619-538-1226
COMPUTER DATA TECHNOLOGY, INC. (U.S.A.) Tel: 516-269-5555 Fax: 516-269-4545
INFONET ENGINEERING PTE LTD. (Singapore) Tel: 65-296-3377 Fax: 65-297-1194
HOWCHING CORP. (Taiwan) Tel: 886-2-5050525 Fax: 886-2-5031680
PT. CITRATHIRZA ASTARIJAYA (Indonesia) Tel: 021-828-1687 Fax: 021-828-1686

*All tradenames and products numbers are property of their respective companies.

CIRCLE 245 ON READER CARD

NEW WAVE

3000/9000

THE TAILOR-MADE OFFICE

**For Custom-Fitted
Commercial Networks,
HP NewWave Office
Is Designed To Hide
The Seams**

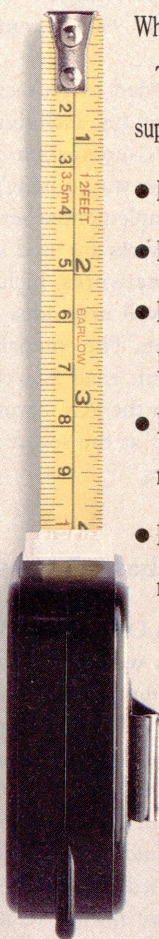
A

BY PAULA JACOBS

According to many industry analysts, HP's NewWave Office has added a new, creative dimension to the office environment. Its practical application of object-technology has introduced solutions not possible with conventional programming methods and won the hearts and minds of new commercial users. Since June 1990, HP has shipped an estimated 2,000 copies of NewWave Office to approximately 1,000 customers. Within this first year, 65 percent of the copies sold went to traditional MPE users and 35 percent to new UNIX customers. HP has targeted NewWave Office at a number of key commercial applications. "The typical NewWave Office user is a knowledge worker in a Fortune 500 company," says Steve Jeffery, HP's marketing manager for NewWave Office. His product is ideally-suited to facilitate most of the office tasks this type of user needs to perform.

In business-intelligence applications, NewWave Office allows data to be gathered efficiently from sources inside and outside an

Who Can Measure Up To This?



What should you look for in an accounting and human resource software company?

The whole nine yards. After all, your investment could end up worthless if your supplier goes belly-up.

- Does the vendor have more than 5,000 installations?
- Have they been in business more than 15 years?
- Does their client list include names like Owens-Corning Fiberglas, Knight-Ridder, Inc. and Red Roof Inns?
- Do they have the resources of an information, software, communications and network services leader, like CompuServe, behind them?
- Does their parent company report more than \$1.1 billion in annual gross revenues, such as H&R Block?
- Are they on the forefront of new technology with open, portable and client-server systems?
- Is their customer support truly the best in the industry?

Granted, these standards are a little high for most software companies.

Then again, at Collier-Jackson, they're just the beginning.

See how we size up against the competition. Call 813-872-9990 today.

CompuServe
Collier-Jackson

WORLD CLASS SERIES™ General Ledger, Accounts Payable, Accounts Receivable,
Fixed Assets, Purchasing, Payroll, Personnel, Employee Fund Administration.

CIRCLE 111 ON READER CARD



The ability to integrate both old and new applications, combined with support for multivendor platforms has extended computing capabilities in ways never before imaginable.

organization in combination with PC-based tools. With document-management, users can capture and organize all types of data and documents for shared use in enterprise-wide computing. Process automation or workflow communications helps automate numerous business applications, such as expense reports and travel requests, using electronic mail and fax.

It's at the desktop level in the DOS-Windows environment where this value-added functionality is most evident. Here NewWave Office provides an interface that masks the complexity of the network behind the desktop, enabling users to interact with icons and extract data from various sources. The ability to integrate both old and new applications, combined with support for multivendor platforms has extended computing capabilities in ways never before imaginable.

NewWave Office is a standards-based suite of 28 software products and services that HP touts as the only comprehensive portfolio of multiplatform client-server office products and services available in the industry. The latest release incorporates client-server software-distribution capabilities, support for Novell's NetWare, and platform support for the SCO UNIX System V Release 3.2 for the Intel 386. HP has introduced NewWave Office as an open-systems solution to provide communications, decision-support, and information-sharing services. Communications facilities include electronic mail, network-wide ad hoc query, and terminal-emulation capabilities. These features are designed to enhance productivity and efficiency, facilitating information exchange in a multivendor environment.

Office Overalls

NEW WAVE OFFICE IS designed to create a seamless interface between applications. This feature means that users don't notice a difference between UNIX and the MPE environment; to the user, the two operating system platforms, together with PCs running DOS and MS-Windows, are all part of the same office fabric.

This seamless integration was a key selection criterion for HydraCorp, a wholly owned subsidiary of Niagara Mohawk that develops alternate energy sources throughout the United States. HydraCorp oversees accounting and project management for almost 30 companies. Financial analysts must be able to track project development activities over a two to three year period.

Until a year ago, a 3Com LAN network of PCs and servers

was used to support 75 users at corporate headquarters. When HydraCorp decided to upgrade its office system, the company evaluated both DEC ALL-IN-1 and IBM OfficeVision. "Neither DEC nor IBM offered the seamless integration we required," explained MIS Manager Kelly O'Donnell. "I did research for an entire year before selecting NewWave Office. That's when we migrated to an HP 9000 system running UNIX and LAN Manager."

The company needed to protect its investment in existing PC/LAN DOS applications, including Lotus, WordPerfect and EMIS, as well as its PC-compatible hardware. "We went with HP because integration was so easy," says O'Donnell.

HydraCorp has implemented several NewWave Office applications. ARPA Services are used for multivendor communications for different networks, including file transfer over the company's three Novell networks. HP AdvanceLink provides CC terminal emulation. The company uses both OpenMail and AdvanceMail electronic mail as a cost-effective mail solution. AdvanceMail runs on the PCs, connecting to the HP host; this solution enables users at the seven remote sites to dial in and retrieve their messages.

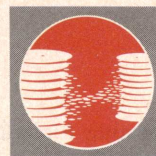
Database Accoutrements

THE DESIGN OF NEW WAVE OFFICE, with its agent capability, is well-suited to custom development applications. One customer who has taken advantage of this feature is Hoescht-Roussel Pharmaceuticals, the pharmaceutical division of the German manufacturer Hoechst Celanese and an HP shop for 14 years.

"It's very important for our application environment to allow people in our building access to our database for strategic applications," explained Eric Herbel, director of Clinical Systems. "That's why we moved to a Windows-based environment and the main reason we went with NewWave Office two years ago. There were no other alternatives available that offered the same capabilities."

Hoescht-Roussel must make accurate judgements about clinical data, and submit clinical reports to the Food and Drug Administration to determine whether clinical testing is safe and efficacious. Using NewWave Office, the company developed custom software called the "Computer-Assisted New Drug Application" (CANDA). This interactive clinical data review and re-

added
You can bank on TranSpooler's features.



*Integrate
all of your
MPE systems
and UNIX
systems easily
with NSD's
TranSpooler.*

We'll even give you a bank! Try TranSpooler™ free for 30 days and receive a complimentary data bank.

Spoolfile transfer just got better.

TranSpooler, NSD's bi-directional spoolfile transfer software, is better than ever. This powerful program enables you to transfer spoolfiles between MPE systems or between MPE and HP-UX systems over a network. You can transfer from one HP3000 to another or integrate your MPE and UNIX systems. Save time and money by off-loading spoolfiles onto less costly systems. TranSpooler is so powerful, it supports multi-tasking and performs multiple spoolfile transfers simultaneously.

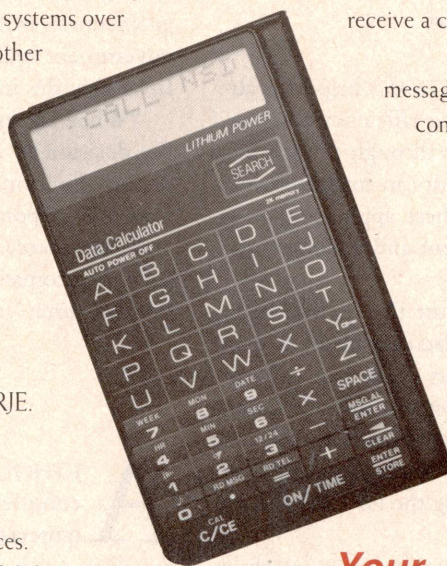
Announcing TranSpooler's new features.

TranSpooler has been enhanced with some great new features. Now TranSpooler gives you:

- The ability to print on IBM hosts through SNA/NRJE.
- User-defined banner page formatting.
- A new broadcast capability allowing you to send spoolfiles to multiple nodes from a single node.

Spoolfiles can then be distributed to multiple devices.

With these new features, TranSpooler is more powerful than ever!



Call for a demo and get your data bank free.

If you have a networked HP3000 or HP3000/9000 environment, call for a free 30-day trial of TranSpooler and receive a complimentary data bank. This data bank features calculator functions, clock/alarm functions, and message/schedule/phone number storage functions. It's compact, easy to use, and great way to manage your personal information.

Your data center gets a boost.

You get a bank.

To save your operation time and money, NSD's productivity boosting software is something you can bank on. For your free 30-day evaluation of TranSpooler and your complimentary data bank, call NSD today.

**Your
free gift.**

800.538.3818

This offer expires 60 days from date of publication.



NSD 1400 FASHION ISLAND, FOURTH FLOOR, SAN MATEO, CA 94404 415.573.5923 415.573.6691 (FAX) DISTRIBUTORS: QUANT SYSTEMS by "RYANSTAETE", HOOFDORP, THE NETHERLANDS 31.2503.40334; GAINSBOROUGH SOFTWARE LTD., SUTTON COLDFIELD, UNITED KINGDOM 021.352.0707; G. SCHIPPER & ASSOCIATES, INC., ONTARIO CANADA 416.889.9526. ISM, VIENNA, AUSTRIA 43.1.715.7302. TRANSPPOOLER IS A TRADEMARK OF NSD, INC.

porting tool allows the clinical research department to access clinical data stored on an ORACLE database. The result is a significant improvement in the quality, style, and appearance of these reports. Because of NewWave Office's seamless integration, CNDA also is accessible to other client-server applications in the environment.

Presently, in the clinical research department 175 staff members, most of whom aren't sophisticated computer users, use NewWave Office on 386 PCs. These users come from a wide range of educational backgrounds and include secretarial support staff, clinical researchers with graduate degrees and physicians.

The clinical research department is running several applications under NewWave on the PC, including NewWave Office, NewWave Excel, PowerPoint, and the Word-for-Windows word processing package. The PCs are connected by an HP StarLAN 10 and an HP EtherTwist with StarLAN/10 hubs connected to a ThickWire coax backbone.

The network also includes an HP 3000/960, HP 3000/70, HP 9000/350, and an HP 9000/635 configured as an image server running HP AIMS (Advanced Image Management System). As part of a client-server architecture configuration, both HP 3000/960 systems are used as file servers and print servers to an ORACLE database. Future plans include the installation of NewWave Mail as a front end to HP DeskManager.

"The main benefits we're seeing," says Herbel, "are a very easy-to-use interface, integration possibilities between different applications and powerful client-server applications. We also have started to implement a strategy to integrate HP AIMS image management to maintain images of case-related forms with original clinical data from physicians."

A Stitch In Time

PROCESS AUTOMATION APPLICATIONS help users automate business processes, increasing efficiency and productivity. Saving time and money through process automation has historically been a top priority in manufacturing and related process industries. Users in these application areas can take full advantage of the object, agent and mailing capabilities of NewWave Office.

One example of a company doing just that is McMillan Blodell, a paper mill and plywood manufacturer based in Pine Hill, Alabama. McMillan Blodell managers needed an efficient way to monitor the status of activities on the manufacturing floor. The company has five HP 3000s, 300 PCs (both 286 and 386) and 20 portables. All five 3000s are interconnected over LANs and the 100 PCs are connected using the HP OfficeShare network to support 450 users.

"We were looking for a common graphical user interface that worked over more than one operating system," says Jim Bonner, MIS director for the company. "NewWave supports

our four operating systems—UNIX, MPE, DOS and OS/2. That's what attracted us."

NewWave Office has enabled the company, a long-time user of HP DeskManager, to integrate Information Access tools, communications and compound document creation applications into one user environment. For example, NewWave Access provides a query capability to integrate databases on the mini-computer and download to PCs running Microsoft, Excel spreadsheet, Lotus, AmiPro word processing software and the Charisma drawing package.

The implementation of NewWave Office has resulted in greater efficiency, higher employee productivity and enhanced employee participation in company activities. "We find that the concept of objects has become natural for our users because it's so intuitive and easy to use," explained Bonner. "The agent capability enables us to automate repetitive tasks on a daily basis," she notes, adding, "For example, the agent wakes up every morning and checks to see what merchandise has been ordered outside of the company and is available in our receiving department."

Since 1984, the city of Palo Alto has been an HP installation with two HP 3000 Model 949s and one Model 70. HP Information Access has been the front end tool used to retrieve information from databases residing on the 3000 system and combine it with other data in PC database tools, such as dBase and R:Base. To share information among departments, the city relies on HP Resource Sharing.

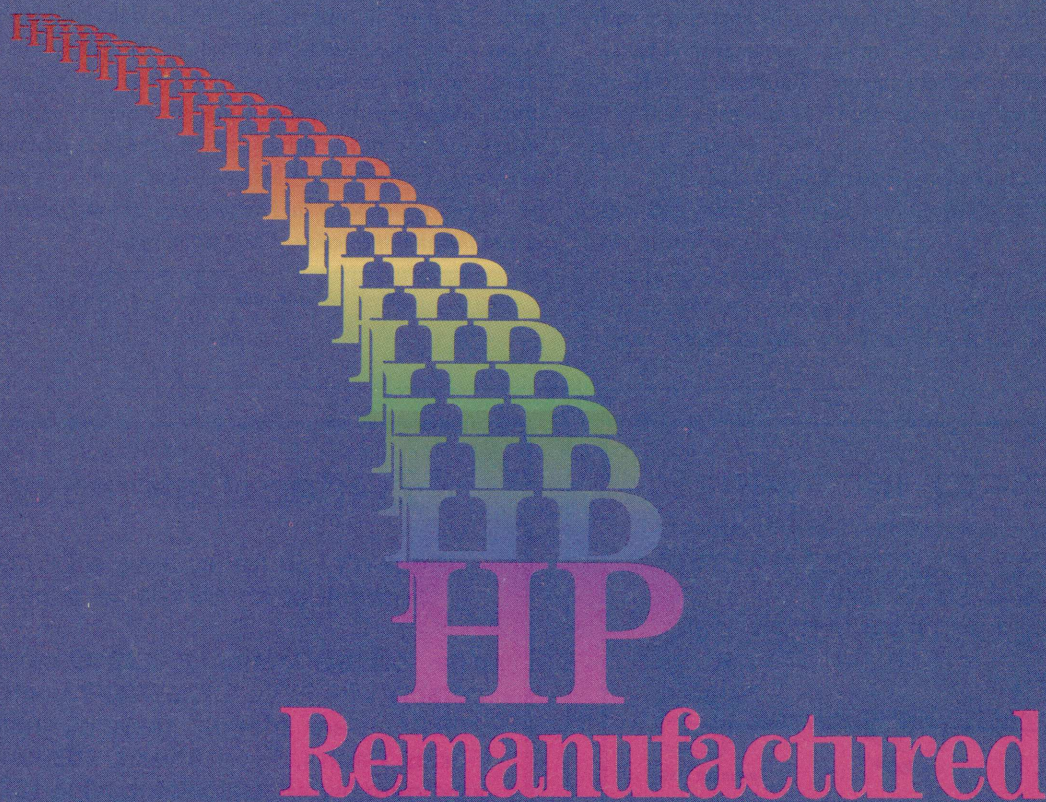
Like any other urban area, even pleasant, laid-back Palo Alto requires quick access to data from several sources and agencies, including financial databases, utility systems, in-house payroll, fire, police, building inspection and planning. NewWave Office enables Palo Alto's public servants to get the information quickly and easily. For example, the Fire Department always gets requests from the State of California as well as the Federal government requesting information about hazardous material. Invariably this information is required in different formats.

"When HP introduced the NewWave Access GUI, we made the decision to adopt NewWave," explains Dianah Neff, director of information resources. "Previously, we had used Inform and Report/Dictionary 3000, which are fine tools for programmer access but not for the end-user," she says, "We expect to automate even more processes to save our users considerable time."

Sartorial Elegance

ALTHOUGH APPLICATION environments may vary considerably, common threads link the training requirements and the implementation of NewWave Office. First, most customers need only minimal training, although PC users generally adapt more easily than traditional terminal users. Second, as HP recommends, gradual, phased-in imple-

It isn't really
remanufactured
unless it's



When you purchase a fully remanufactured product from Hewlett-Packard, you get what only HP can provide: **HP factory refurbishment**. That's because HP puts all its returned equipment through a rigorous refurbishment process that includes:

- The latest engineering and software updates
- Replacement of all worn parts

- Thorough diagnostic and performance testing
- Cosmetic updating of exterior cabinets

What else do you get when you purchase **HP Remanufactured** products? You'll be buying from the largest inventory of HP products available anywhere. **Plus:** You get the same warranty HP gives all its new products.

That's why we say, "It isn't *really* remanufactured unless it's **HP Remanufactured**."

For more information about Hewlett-Packard's complete line of remanufactured products, call **1-800-752-0900, ext. 2434**



**HEWLETT
PACKARD**

CIRCLE 198 ON READER CARD

mentation is the most effective. Third, because of the product's intuitive nature, both training and implementation are easy. And finally, it's the consistent user interface that facilitates implementation and rapid user adaptation, even when a site has several operating systems.

According to many customers, the design of NewWave Office is simple and intuitive enough to permit a gentle learning curve. In fact, most have found in-house training sufficient. For example, Palo Alto developed an in-house curriculum in conjunction with HP. All computer users are required to attend a two to three day training class. Taught in four-hour segments, the class incorporates the use of both packaged and custom applications. The training program has been highly successful, with about 600 to 1,000 users taking PC training on an annual basis.

As Hoescht-Roussel's Herbel explains, "Everything we heard about NewWave Office in terms of ease of use and training is true. While our training time takes the same amount of time as before, the sophistication level is significantly higher."

Says McMillan Blodell's Bonner, "Users are delighted with NewWave Office and very comfortable with manipulating objects and double clicking, such as dropping objects in a printer or file cabinet." Today, 15 people are using NewWave. Initially, the company introduced NewWave only to the program-

ming staff. Now the mill manager and some office clerical personnel also are using NewWave.

At HydraCorp, all 75 company users rely on NewWave regularly, and because of their familiarity with PCs, have adapted easily to NewWave Office. "Our staff enjoys using objects instead of menus and find that they can still do what they have always done. In fact, everyone is looking forward to using Windows, which we plan to add next year," says O'Donnell.

Object-oriented technology, client-server architecture and the virtues of NewWave have been extolled for the technical environment. But the real test of long-term success is how well NewWave Office continues to be accepted in commercial settings. To date, it appears that HP has delivered on its promise to provide customers with a tool that is easy to use and implement and that provides a seamless interface between applications. These are the features the commercial environment requires and the ones critical to widespread acceptance by users of varying sophistication levels.—*Paula Jacobs is a marketing consultant and writer based in Framingham, Massachusetts. She specializes in the implementation of new technologies.*

Would you like to continue to see articles on this topic?

Circle on reader card

yes 350 no 349

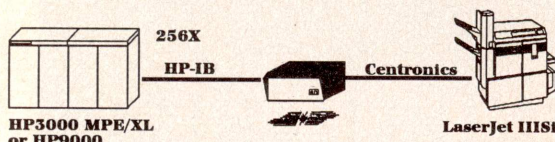
LASERJET IIISi

HP-IB LOCAL OR REMOTE INTERFACING

Multiply system to printer transfer speed by at least 10!

TURBOLINK

THE HP-IB INTERFACE LINK



TURBOLINK

Allows inexpensive local or remote HP-IB printing
(between floors, buildings, cities)

X.25 connection now available

Dramatically increase graphics/text throughput

Full utilization of LJIIISi formatter speed

Significantly reduce download time

Eliminate serial interface bottleneck

Provides printer status reporting (off-line, paper out, etc.)

Complete PCL 4 / Postscript Compatibility

CRC error checking between processor & printer is included

Standard HP 256X HP-IB Driver Utilized.

No Software Modifications Are Necessary.

For more information contact:

APEX TECHNOLOGY, INC.

4260 E. La Paloma Drive, Tucson, AZ 85718

Phone: (602) 577-6414, Fax: (602) 299-9133

CIRCLE 290 ON READER CARD

Zentec/Datamaxx

Wouldn't you rather have a COLOR terminal at an affordable price?

The Zentec/Datamaxx 9394C is compatible with HP's 2392, 700/92, and the 700/94. User friendly features include: Forms Cache, Type Ahead, 108-key HP keyboard layout, Calculator, 80 to 132 column screen display, 20 display pages, and a user-selectable color palette for character attributes.

Zentec/Datamaxx
is solutions for today
and progress for tomorrow

With a distributor force nationwide
Zentec/Datamaxx wants to provide you
with terminals for the 90's.

ZENTEC/DATAMAXX

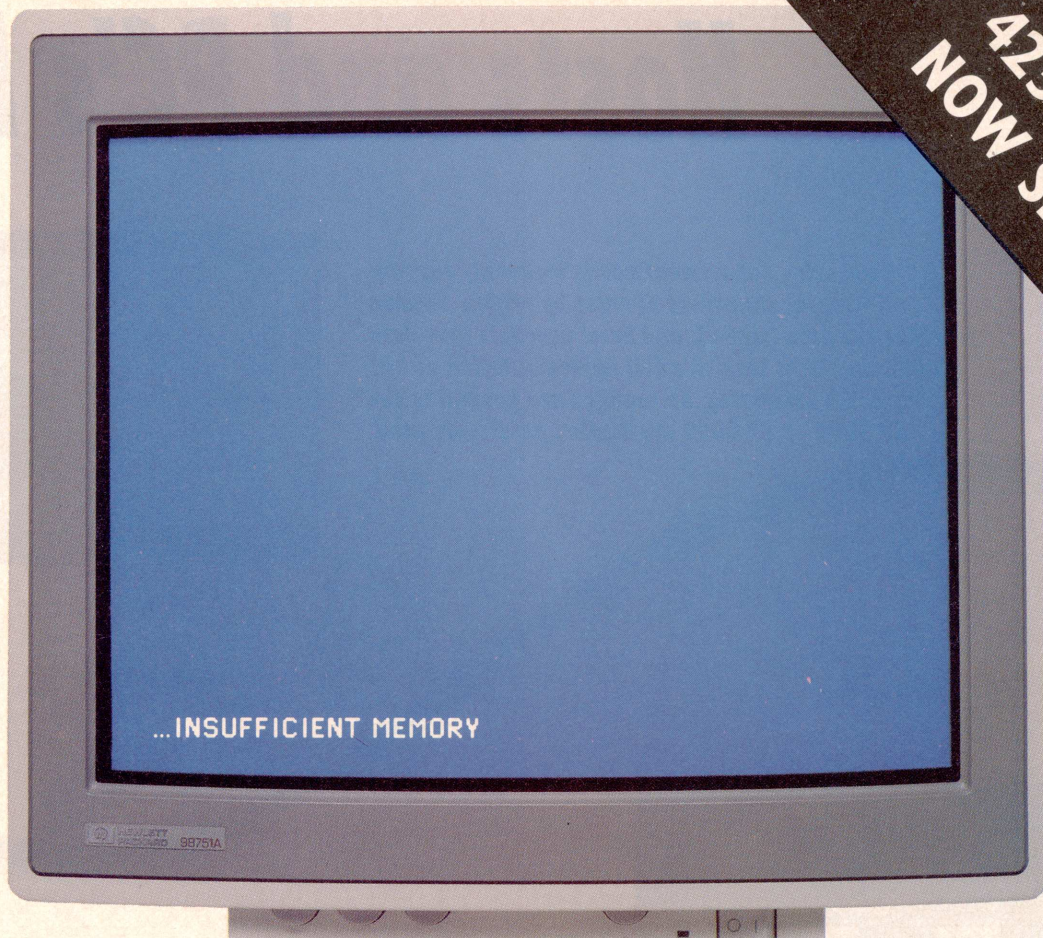
3000 Commonwealth Blvd.

Tallahassee, FL 32303

(800) 456-5637 • FAX (904) 574-6940

CIRCLE 469 ON READER CARD

425e Memory
NOW SHIPPING



Time for Camintonn workstation memory.

You expect a lot of work from your workstation. But if you're like most power users, your workstation could get maxed out.

Fortunately, there are Camintonn workstation memory enhancements.

Now Camintonn offers memory for SUN, HP, DEC, IBM and Silicon Graphics workstations. Memory that meets or exceeds exacting standards of compatibility and performance, yet costs up to 70% less than original manufacturer prices.

In the 10 years we've been making DEC memory and communication

enhancements, we've been #1 with an impressive number of technical and product innovations. We design our products for maximum price/performance value and manufacture them with rigorous quality controls. Then we back them

with a lifetime warranty and a 24-hour loaner/replacement policy.

If you want more performance and more work from your workstation, give us a call.

(800) 843-8336

(714) 454-6500

Fax (714) 454-6599

See us at COMDEX, Booth #M622

CIRCLE 458 ON READER CARD

CAMINTONN
CORPORATION

Leveraging your computing investment.

22 Morgan, Irvine, CA 92718

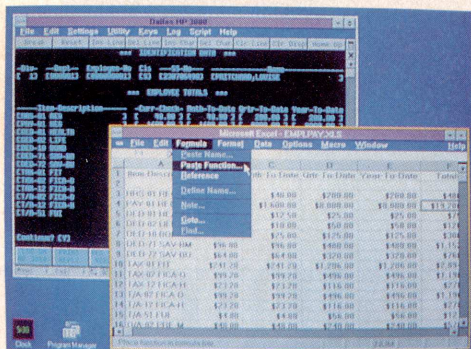
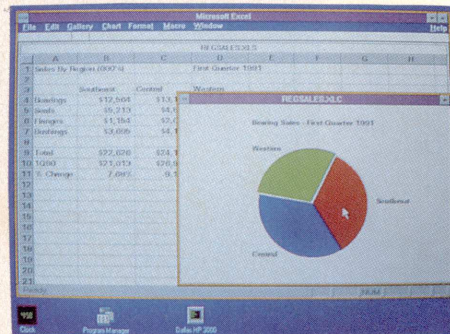
© 1991 Camintonn Corp. All trademarks and copyrights acknowledged.

Camintonn Workstation Memory

SUN	SPARCstation 1, 1+, 2, IPC
HP	9000, Model 300/400 Series
DEC	VAX 4000 DECstation 5000 DECstation 3100 VAXstation 3100/2000 MicroVAX III/II/PDP
IBM	RISC 6000
Silicon Graphics	IRIS, Models 4D/20, 4D/25

Hosts and PC's have

Your sales department needs frequent, easy-to-interpret snapshots of sales by region. Session provides the data needed, and Excel presents that data graphically. With Session's full implementation of DDE and DDE templates, no changes are needed to the HP 3000 or HP 9000 application previously used.



Your financial department needs an easy way to extract data from the HP host and manipulate the data in a spreadsheet for analysis. Session and Excel, working together, can do this automatically every morning, providing up-to-the-minute data for crucial financial decisions.

Are you tired of listening to users complain about how difficult and time-consuming it is to get host computer information into their PCs?

Session for Windows makes it easy.

Using Business Session® for Windows, scripts can be created that automatically retrieve host data and pass it to Windows applications. Because Session supports Microsoft's Dynamic Data Exchange (DDE), Session can talk to programs like Microsoft Excel™ and Word™ for Windows, with no involvement on the part of the user. This puts information where it's

needed, when it's needed, and allows easy analysis using your PC applications.

Automate repetitive tasks.

Session's scripting capabilities can be used to automate many repetitive tasks, such as log-ons, printing files, and creating and deleting files. And Business Session for NewWave takes task automation even further, allowing users to transfer files or run scripts with a simple drag and drop. Better yet, they can let their Agents do the work.

Session lets PCs emulate a variety of terminals, including HP 700/94, HP ANSI, and DEC VT100.

lymlabs

Tymlabs Corporation
811 Barton Springs Road
Austin, TX 78704 USA
(512) 478-0611 Fax (512) 479-0735

Tymlabs (UK) Ltd.
Munro House, 9 Trafalgar Way
Bar Hill, Cambridge, UK CB3 8SQ
0954-780088 Fax 0954-780001

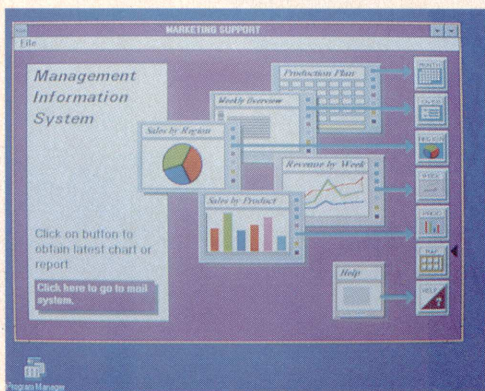
Wick Hill Associates
U.K. 0784-438441

Tymlabs-APPIC
France 64-54-87-37

Mandata
West Germany 02151-58900

Infosistemas Financieros
Mexico 2543284

finally clicked.



Your senior management needs easy access to critical information stored on the company's network of computer systems. Using other Windows-based products like Asymetrix Toolbox[™], a custom interface can be created that allows host data to be accessed by simply clicking on an area of the screen. Windows applications extract data from the network with Session, making it available for analysis with Excel and report distribution through electronic mail.

Files can be transferred over many different networks, and multiple sessions to different hosts can be running at the same time.

Put Session to the test . . . risk-free.

If your users are retrieving host information by displaying the data on their PC screens and copying it over bit-by-bit, or by downloading the files to PC disks and converting them, it's time you discovered Session. Call today and ask for a free copy of the Session Idea Book. And while you're at it, order a test copy of Session. If you're not satisfied after seeing Session in action, we'll gladly refund your money.

SESSION IDEA BOOK

Asymetrix

Order this free booklet and find out:

- How to develop an Executive Information System using DDE
- How to replace your terminal-based order entry system with Windows dialog boxes
- How to create a point-and-click interface to your host-based E-mail system
- How to integrate PC and LAN-based databases with host databases
- How to improve programmer productivity by using PC tools to develop and edit source code for host applications
- And much, much more

**CALL TODAY
1-800-767-0611**

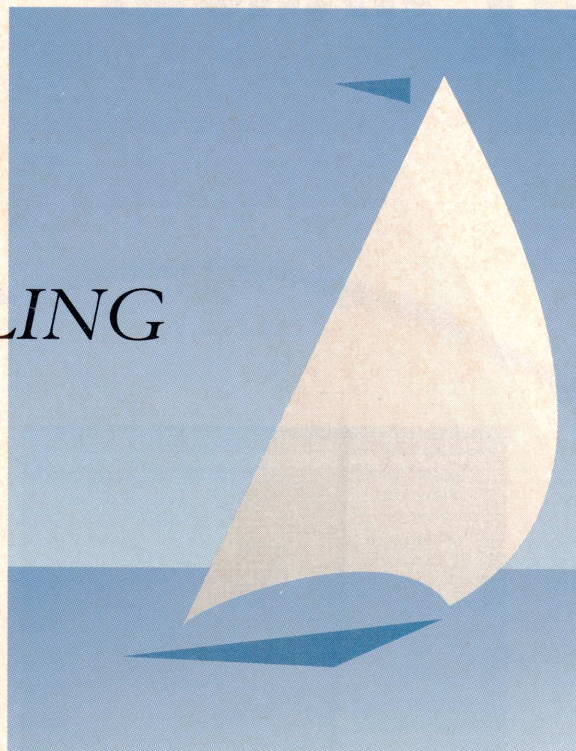
Singapore Computer
Singapore 011-65-441-2688

Quant Systems
Netherlands 2503-40334

Excelco Oy Ltd.
Finland 358-0-8797212

CSAILING

Navigate Your Way Through Executing Jobstreams With Bradmark's TeleScope



Electronic mail has become a core application in many offices, and its benefits to operations staff are numerous. But even the most sophisticated electronic mail packages available on the HP 3000 don't provide a facility for operations staff to communicate with one of their most important "users"—their jobstreams. Bradmark Computer Systems (Houston, TX) recognized this and developed TeleScope to provide bidirectional communication with jobstreams and interactive control of jobstream execution.

Product Inspection

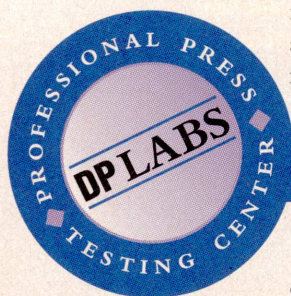
TeleScope closes the gap between people and executing jobstreams by providing three types of functions: a monitoring program, a communications utility program, and a set of programmable intrinsics.

The jobstream monitor, appropriately named "Monitor", is the facility for managing jobstream execution and directing inquiries to jobstreams. Through the

Monitor you can execute the familiar MPE commands for jobstream control (ABORTJOB, ALTJOB, BREAKJOB, RESUMEJOB and SHOWJOB) as well as the TeleScope specific commands CALL and HANGUP, SEND and RECEIVE, JOBS, MESSAGE, PRINT and TREE. The Monitor also supports the execution of most other MPE commands and an MPE XL style command redo facility as well as online help.

You can use the Monitor without making any changes to your jobstreams. This facility provides an easy means of determining what programs are running within each jobstream and the priorities of those executing programs. (The actual amount of information you are shown is limited by MPE security.) The source file of the executing jobstream then can be printed on the terminal or a printer through the use of the PRINT command, if you know the name of the source file.

TeleScope allows a much greater level of jobstream control if you make changes



By Joel Martin

to your jobstreams, and the easiest way to do this is to have your jobstream run TeleScope's TSUTIL program. TSUTIL sends checkpoint messages that can be read using the MESSAGE command of the TeleScope Monitor. A variation on the TSUTIL command, TSUTILPAUSE, allows you to create a pause of from 0 to 1,440 minutes (24 hours) in the jobstream in addition to sending a checkpoint message. These pauses can be useful in providing an opportunity to review the progress of an executing job.

If the jobstream has had an error or a condition necessary for the job to continue hasn't been met, then you can CALL the jobstream from TeleScope and use the TSSETJCW command to abort the remainder of the jobstream by remotely setting a job control work (JCW).

See For Yourself

The greatest level of jobstream control will only be realized if you make changes to the programs run within the jobstreams as well as to the jobstreams themselves. TeleScope provides a set of programmable intrinsics that let you build a TeleScope interface into your COBOL, PASCAL or FORTRAN programs. The steps required to change a program are relatively straightforward.

Unfortunately, because both the documentation and the product tape lack a complete sample program, modifying a program to call the TeleScope intrinsics is more difficult than it should be. After a bit of trial and error and lengthy study of the documentation, I was able to write a program that communicated with the TeleScope Monitor.

My sample program was designed to read records from one file and write them to another. By including the appropriate TeleScope calls in my program source code, I was able to CALL the program from the TeleScope Monitor and ask the program (using the TALK subcommand) to tell me how many records had been written to that point as well as the key value of the record just written.

This type of application of TeleScope

TeleScope (Version A.00.04)

SYSTEM REQUIREMENTS: HP 3000 running MPE V or MPE XL.

PRICE: \$2,000 (first copy, Micro 3000) through \$3,500 (first copy, Series 960) plus annual maintenance. 90 day warranty.

Bradmark Computer Systems Inc.

HEADQUARTERS:

4265 San Felipe
Ste. 820
Houston, TX 77027
(713) 621-2808
(713) 621-1639 FAX

PRODUCTS: DbGeneral, TeleScope, SUPERDEX

FOUNDED: 1981

CIRCLE 315 ON READER CARD

provides an effective and accurate mechanism for forecasting the completion time of long running jobstreams while taking into account the system load and other factors that will influence a particular run of a job.

If my jobstream were running too slowly, then with TeleScope's TSSETPRI command, I could raise the executing priority of the running program in an effort to speed its completion. Similarly, if the jobstream were consuming too much system time, I could issue the TSSETPRI command to lower the programs executing priority, thus delaying its completion but freeing more system resources for other users.

TSSETPRI is naturally constrained by MPE security. It won't let you change a programs executing priority to a value higher than that allowed for jobstreams or higher than that allowed for the logon account of the particular jobstream. When I attempted to raise a program's priority to the CS queue, the action wasn't allowed presumably because of our system jobstream limit of DS queue execution.

With a bit more effort, my sample program could have used the TeleScope intrinsics to provide me with a mecha-

nism for remotely shutting down the jobstream from a TeleScope session. This could be considered a "remote control" for your jobstream.

Jobstream Insight

You may be thinking that to shut down a jobstream isn't a big deal, and you may now use the ABORTJOB command of MPE to shut down jobs that are still running at the time you start your back-ups. The problem with the ABORTJOB approach is that you may create a logical inconsistency in your data by aborting a job that performs data updates. Imagine that a program run within a jobstream reads a dataset of paid invoices, writes a record to a monthly receipts file that isn't a dataset, and then flags or updates the invoice as having been processed.

If you use the ABORTJOB command while this program is executing, you stand a good chance of interrupting the program after the output record has been written but before the input record has been updated. Should this be the case, then restarting the job may result in two output records being written for a single input record. This isn't the type of problem that's always immediately apparent, but it's the type of problem that causes the folks in accounting to get very upset when finally discovered.

Modifying the jobstream to allow it to be gracefully terminated from the TeleScope monitor, while precluding the possibility of introducing a logical inconsistency in the data, is no more difficult than equipping the program to respond to a simple inquiry as I was able to do in my sample program. The same intrinsics that provide the communications facility can be set-up to test for a shutdown message at those points in your application program where the data is logically consistent.

And, if you want to interrupt execution of the jobstream, then you could send a pause message from TeleScope. This approach is preferable to suspending the jobstream using the MPE BREAKJOB command, which may put you at risk of keeping files or datasets

locked while the job is suspended, thereby preventing access to that information by other users as well as preventing the backup of those files.

Navigation Tools

The manual is professionally published and includes the expected table of contents and index, but it isn't an "easy read." I found two things necessary for effective navigation of the manual—frequent reference to the table of contents and reliance on a chart found early in the manual that describes the interrelationship of the TeleScope modules and commands. But even the chart I found so helpful could use some reworking.

TeleScope has a few idiosyncrasies that could be easily fixed in a following release. The TeleScope Monitor isn't very forgiving about command syntax.

MPE commands issued from the Monitor don't work if prefaced with a colon, and job numbers must be typed as "J123" rather than the more common "#J123" or the more preferable "123". You would generally not use TeleScope to communicate with another session but if this were desirable, then the Monitor could require "#S123" to differentiate sessions from jobstreams.

It also would be a trivial but helpful change to accept MESSAGES (with an "S") for the syntactically correct MESSAGE command. More effort also could be put forth in the handling of error messages, and all of the error messages could benefit from a more in-depth explanation in the documentation. Some context-sensitive help to aid in identifying the problem would also be a welcome enhancement. There needs to be some

clarification of the differences between similar commands, e.g. SEND and TALK; TSUTILPAUSE and TSPAUSE, MESSAGE and RECEIVE. And it would be nice if you didn't have to create your own UDC command.

TeleScope has some rough edges, and the documentation will take more study than should be necessary, but with a little effort it can be an effective tool for remotely viewing and controlling batch jobstream execution. TeleScope's ability to provide you with a customized look inside an executing application program, presuming you can alter the program itself, will be a dream come true to many an HP 3000 operations manager. If you have problems managing long-running or time-critical batch jobs, then TeleScope could be the answer you need. ■

PRESTO!

Everything You
Need To
Understand
Multivendor
Networks

Softcover, 250 pages.
ISBN 1-878956-03-5

To expand your networking horizons beyond single-vendor boundaries, you need *A Manager's Guide to Multivendor Networks*. It explains complex concepts in simple English so you can understand and use the information immediately. Put John Enck's years of networking experience to work for you as you learn valuable networking procedures and strategies at your own pace.

PLUS a comprehensive glossary with over 700 networking terms.

ORDER YOUR COPY TODAY!



**ONLY
\$35!**



ORDER FORM

A Manager's Guide to Multivendor Networks by John Enck

Send _____ copy(ies) of *A Manager's Guide to Multivendor Networks* @ \$35 each, plus UPS shipping.*

Name _____

Title _____

Company _____

Address _____

City/State/Zip _____

Phone () _____

FAX () _____

Street address required.

☐ Payment enclosed \$ _____.

Charge to:

☐ MasterCard ☐ VISA ☐ American Express

Account # _____ Exp. Date _____

Signature _____ Date _____

*UPS shipping: In the U.S., \$4 for the first book, \$1 for each additional book. Outside the U.S., please call (215) 957-4265 for shipping information. PA residents add 6% sales tax.

Call Wendy to order by phone (215) 957-4265 or FAX (215) 957-1050.

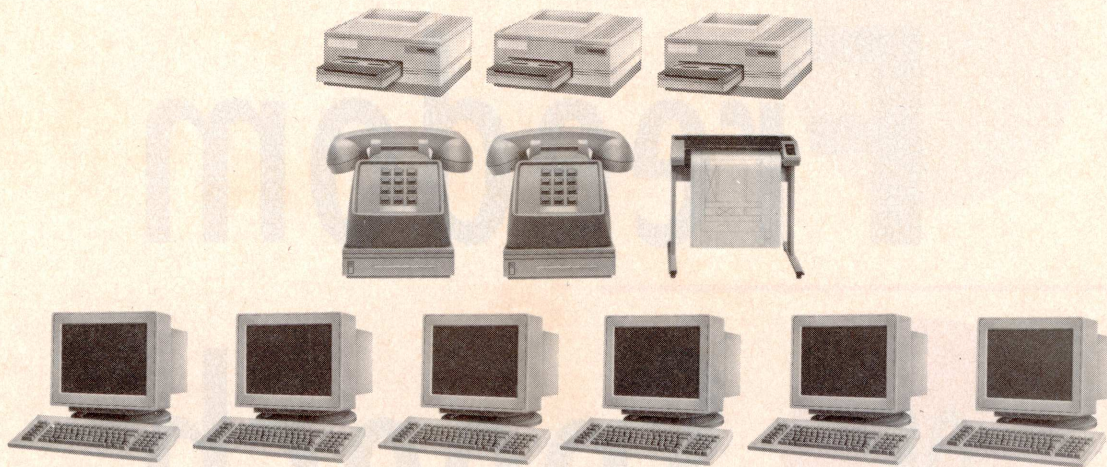
Mail completed form to:

Professional Press Books
101 Witmer Road, P.O. Box 446
Horsham, PA 19044

16PH101

Now Available
for HP Apollo
Series 700

To Fit All This



Into This



Call This



It's amazing how much you can plug into your SCSI port. So long as the first thing you plug in is a Central Data scsiTerminal Server.[™] Because when you do that, you instantly give your Sun SPARCstation or SCO UNIX system more ports. Without giving up a single card slot. Ports for terminals. Ports for modems. Ports for printers. Ports that cost less. Especially when compared to multiport boards and ethernet terminal servers.

Yes, now our 16-port scsiTerminal Server is joined by our new two- and eight-port servers. Both of which boast an additional parallel port. Which gives you more options than ever before. Whether you're an OEM. VAR. Or end-user.

For the full story, call Central Data at the number above. Because now by putting just a little into a SCSI port, you can get so much more out of it.

**Central
Data**
The scsiSystems CompanySM

1602 Newton Drive, Champaign, IL 61821-1098 • 217-359-8010 • FAX 217-359-6904

CIRCLE 467 ON READER CARD

Freedom OF Speech

**Los Altos Software's DBFree
Lets You Communicate With
IMAGE Databases – In Your
Own Natural Language**

A database is only as good as the information contained within it. However, if access to that information is difficult and time-consuming for the user, a good database won't look good for very long.

DBFree, from Los Altos Software (Los Altos, CA) is a natural language processor for IMAGE databases. DBFree has more than 35 commands that let you perform inquiries and update operations against specific databases on your HP 3000.

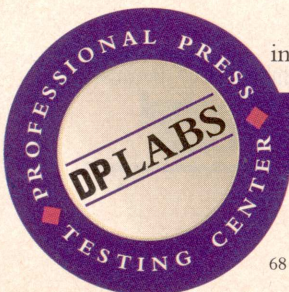
Using artificial intelligence, DBFree interprets statements entered in the natu-

ral language of the user. The natural language aspect of DBFree lets you use freeform statements. You also can make online inquiries, produce offline reports and perform updates.

Breaking The Ice

Installation of DBFree consisted of the Autoload Process, activating the DBFree UDC commands, and linking the databases you want to access with DBFree.

The Autoload Process is straightforward. You need to be logged on as MANAGER.SYS. Once the tape is in-



By George Frueh

There must be something better than the patch panel to switch users between systems...

I know but we can't afford it

We need more ports so all our terminals and PCs can access the host computer...

Can't afford it...

When the system goes down, we need a switch to move users to the back-up, without re-cabling...

Can't afford it...

Any hacker can dial in to our system. Can't we do something about security?

Can't afford it...

We need a LAN to share laser printers and high speed modems...

Can't afford it...

We need more Ethernet terminal servers...

Can't afford it...

ASK US
HOW TO
**SAVE ON
HP DTC
CONNECTIONS**

Now, the proven multi-purpose async connectivity solution you can afford

With Equinox, you **can** afford to network all your asynchronous terminals and PCs to your host computers — even when times are tough. Switch

between hosts from your keyboard. Establish multiple sessions with a few keystrokes. Share ports among part-time users. Let users access printers and share modems.

Even transfer files among PCs without installing a LAN.

Twisted-pair cabling keeps installation costs low and eases people and equipment moves. T1, Ethernet, RS-232, RS-423 and current loop interface options simplify connections in multi-vendor environments, cross-campus or cross-country. Built-in fault tolerance keeps you operational,

and the system is supported by a full three year warranty.

Whether you have fewer than 100 or thousands of users, Equinox has a Data PBX sized to fit your needs. And at about \$100 per port, it's the networking solution you can afford! Call today for details of our 30-day free trial.

EQUINOX

Equinox Systems, Inc.

14260 S.W. 119 Avenue
Miami, FL 33186

800/275-3500



CIRCLE 115 ON READER CARD

FIGURE

```
? FIND LEADS.SOURCE = "BARUG" OR SOURCE = "SCRUG" REPORT END
```

```
BUSINESS-PHONE      = 619/555/1212
LEAD-NUMBER         = 1478
SOURCE              = BARUG [Bay Area Regional Users Group]
EFFECTIVE-DATE      = 89/07/10
SALES-REP-ID        = SUSAN [Susan Woita]
STATUS              = 3 [Have decided to license]
BUSINESS-NAME       = ABC COMPANY
ADDRESS             (01) = 1738 Emerald Way
                   (02) = San Diego, CA 92123
STATE               = CA [California]
ZIP-CODE            = 92123
COUNTRY             = US [United States]
TIME-ZONE           = P [Pacific Coast]
BUSINESS-KEY        = ABCCOM
SUB-SOURCE          = FTL [Follow the Leader Mailer]
```

FUNCTION MENU	PROCEDURE MENU	HELP	REFRESH	24 1	SAVE PROCEDURE	NATURAL LANGUAGE	EXIT DBfree
------------------	-------------------	------	---------	------	-------------------	---------------------	----------------

DBfree's FIND command lets you access any information in the database.

stalled, you restore three stream files by executing the command:

```
RESTORE *T;ZMBLOAD
```

To start the Autoload procedure, enter:

```
STREAM ZMBLOAD1
```

This also sets up the DBfree account and then submits a RESTORE to load the files.

The file ZCX.PUB.DBFREE contains UDCs that must be in effect for the account(s) where you plan to use DBfree. We put this file in PUB.SYS, and then executed the SETCATALOG command for system-wide access.

Linking databases and establishing their accessibility with DBfree is performed by the supervisory user. Once DBfree is up and running, the menu system can be used to perform these tasks.

Chatting With DBfree

To start DBfree, you type DBFREE at the MPE colon prompt. Once started, DBfree prompts you for a password. The supervisory password is SUPER, and should be changed after logging in for the first time.

Once in, DBfree displays a question mark (?) as its command prompt. The command prompt is where you enter your natural language command.

You can change your password by typing PW-ACCESS at the ? prompt, then follow the screens for changing your password. You also can press the F1 (Function Menu) key. Pressing F1 brings up a function menu from which you se-

lect "Establish and Maintain Password Access".

Before you can issue commands, phrases and statements to interrogate your database(s), you first must make each database accessible to DBfree. This is a one-time activity.

Typing HELP DATABASES at the command prompt displays the available databases. To access one of these databases, you enter the command *B = database name*, where database name is the name of the database you want to access.

Los Altos Software supplied us with a demonstration version of its Fastrack 3000 Sales Leads Tracking and Marketing Information System. To make Fastrack accessible we entered:

```
? DATABASE = FASTRACK
```

The Natural Language component of DBfree is composed of commands, phrases and statements. A command is a word that tells the system what you want to do. Examples include CHANGE, FINDALL and LIST.

A phrase contains a single command and further defines the command action. LIST FIRST-NAME is a phrase. A statement can contain one or several phrases, and reads like a paragraph.

Phrases in a statement form a complete procedure in the same way sentences in a paragraph form a complete thought. The following statement lists the first and last names of all contact people for LEAD-NUMBER 528:

```
? FIND CONTACTS.LEAD-NUMBER 528; LIST  
FIRST-NAME LAST-NAME END
```

Positive Feedback

As you enter commands and phrases, DBfree responds in a very positive and efficient way. For example, when you issue a phrase using the proper syntax, an answer is generated and displayed on the screen. Depending on the type of phrase you enter, DBfree will ask you if you want the response displayed offline.

In the event you enter a phrase with a syntax error or an incorrect usage of a command, DBfree displays an error mes-

DBfree

PLATFORMS: HP 3000 running MPE or MPE XL; IMAGE

PRICE: DBfree is priced at \$2,500 and includes one year maintenance; No extra charge for Native Mode Version

Los Altos Software

HEADQUARTERS:

425 First Street, Suite E
Los Altos, CA 94022
415-941-6030
415-941-9072 FAX

PRODUCT LINE: Fastrack 3000, ASAP/3000, Q-PLUS, DBfree

FOUNDED: 1979

OWNERSHIP: Private

CIRCLE 316 ON READER CARD

sage. For example, if you wanted to obtain data on all sales leads located in the eastern time zone, you enter:

```
? FIND LEADS.TIME-ZONE "E" REPORT END
```

In the previous phrase, accidentally leaving off the E in word ZONE would result in the error message:

```
9016-C: WHAT DOES THAT MEAN? TIME-ZON.  
Explain?
```

Typing Y or YES at the Explain prompt displays information about the error. You can also get information about the error and its remedy by typing:

```
? HELP 9016
```

Other DBfree commands include the boolean operators AND and OR, and the arithmetic functions ADD, SUBTRACT, MULTIPLY and DIVIDE.

The READ command reads each record of a sequential file into an item. A common use of this command is to view the contents of an MPE file. The REPORT command lists all significant information in the active dataset entry. The DELETE command purges one or more entries from the database. (You can establish security within DBfree allowing selected users read-only access.)

Probably the most frequently used command is FIND (see Figure 1). With it you can access virtually any information in the database. FIND selects entries in the dataset based on a relationship between an item and some value. Items can be any in the dataset you're looking at, while the relationship can be equal to, not equal to, less than, or greater than.

The function keys on your keyboard let you access other menus, save procedures, transfer to the natural language command prompt for entering natural language commands, and exit DBfree.

DBfree's help system can be accessed in different ways. Typing HELP, followed by a category or element, displays information about that item. For example, to obtain a brief description of the FIND command, type:

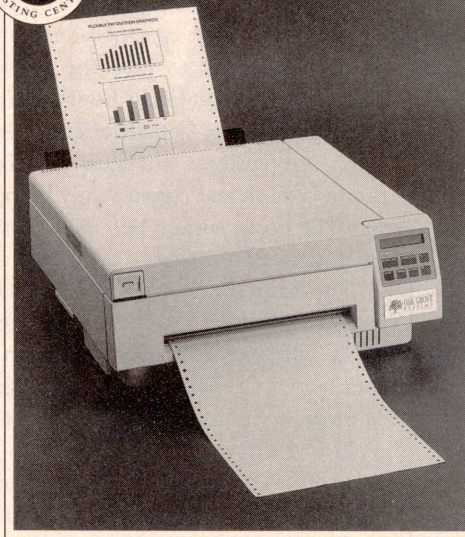
```
? HELP FIND
```

You can also pull up DBfree's Help Menu by pressing the F3 key. The Help Menu contains: Command Description & Syntax, Accessible Databases, Item Information, Dataset Information, Error

Messages, Principles of Operation and Natural Language Overview.

With DBfree, you can bring the power of artificial intelligence to your HP 3000. By combining Natural Language commands into phrases, you can obtain as well as update the information in your IMAGE database fast and efficiently. ■

Only One Printer Handles All of These Applications



- Bar Codes
- MICR Checks
- Pie Charts
- Bar Graphs
- Line Graphs
- Cheshire Labels
- Invoicing & Statements
- Bills of Lading
- Garment Tags
- Postcards & Business Reply

The LZR-16 ScrollWriter

Combines laser print quality with continuous forms convenience, all at an honest 16 pages per minute.

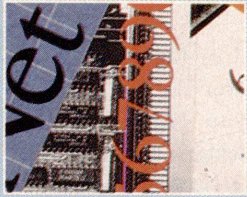
Choose HPIB or remote spooled printing from the front panel LCD. No external device or software modifications required.

Call today for details.

1-800-552-5116



1550 El Camino Real
Menlo Park, CA 94025
(415) 325-1500
(415) 325-6160 fax



NETWORKING

Tim Cahoon

Datacommunication and Terminal Controllers (DTC) into one version that serves both HP 9000 and HP 3000 systems. There's so much good news in this announcement, I'm going to have to confine myself to comments about the DTC itself. You should understand, however, that the new DTCs are controlled by the HP OpenView DTC Manager.

Things have changed since the days of Classic systems with terminals plugged into their end panels. The RISC machines are a complete success and PCs are dirt cheap. The HP gospel of open systems finally has reached the lowest levels of the organization (even my local office). Client-server computing is becoming a reality, and HP is announcing bigger and bigger server/processors. All of these changes make the DTC an important part of HP's future.

As we know, the PA-RISC machines, both 3000s and 9000s are network based. The only physical connections are for disk drives, tape drives, printers and network connections. Your terminals now connect to a highly specialized box (in reality a terminal server) called a DTC. One or more of these DTC boxes, a DTC16 or DTC48, can be located throughout your site and attached to the local network. This provides tremendous flexibility and reduced wiring costs.

What The New DTC Does

There are two types of DTCs. The DTC16 is a small box with two slots for terminals ports. The DTC48 is larger and has six slots. As you can guess from their names, the DTC16 can have up to 16 ports and the DTC48 up to 48 ports.

HP's Revamped DTC Doesn't Stop At Dumb Terminals Anymore

The Big Makeover

These ports provide physical connections for terminals. Each port allows a terminal user to have up to five concurrent connections. What's astounding is that one user can have connections to different hosts using different protocols from that one port.

Terminals physically connected to the DTC gain some major advantages: powerfail recovery, type-ahead and multiple connections to give the terminal user a big productivity boost. Printer sharing is another benefit offered by the DTC. Any printer attached to a DTC port can be shared concurrently by up to five HP hosts, either HP 3000 MPEXL machines or HP 9000s.

The basic function of the new DTC is to connect you to another host, and a "host" also can be defined as a port on another DTC. This means it's possible to connect the terminal ports of systems such as the Classic 3000 directly to the ports of a DTC in a back-to-back mode. Any other system connected to a DTC could then access these systems. This method can be used to add almost any non-networked hosts, modem pools, and

X.25 PADs to your network. Using DTC ports in this fashion may eliminate the need (and the additional cost) for a Data PBX.

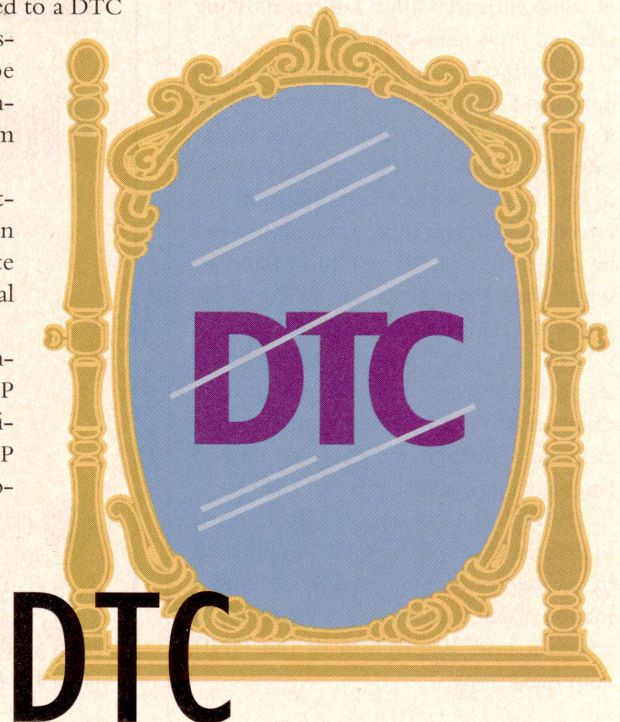
For the basic job of communicating with your HP 3000, the DTC uses a proprietary protocol called AFCP (Avesta Flow Control Protocol). The AFCP was devel-

oped to provide high performance access across the LAN. For the HP 9000, the DTC uses Telnet over TCP/IP.

To access remote, non-HP hosts such as Sun workstations, the basic DTC configuration provides for outbound TCP/IP Telnet support. This feature allows any user on a DTC to communicate with any host that supports Telnet. One exception to that is the AS/400. IBM chose to implement a little used variation of Telnet called LINE MODE. The DTC doesn't support it yet, but then again neither does anyone else.

Mixing With UNIX

On our networks we find a variety of UNIX-based systems. To communicate with these systems, this summer HP introduced ARPA Services/XL for the DTC. This product allows UNIX hosts to communicate with your HP 3000s using Telnet and FTP. Inbound Telnet and FTP are the main components of this re-



With HP TurboSTORE/XL II
this is the proper position
to back up an HP 3000.



**Introducing on-line,
unattended backup for
your HP 3000.**

Forget late night backups. Back up your HP 3000 when you want. On-line and unattended. With on-line backup, users can stay on the system during the backup process.

They don't have to wait, and neither do you. Because HP-engineered data compression and high capacity media mean no waiting around to change tapes. You can devote that time to more productive activities. And features such as interleaving and parallel restore make HP backup lightning fast.

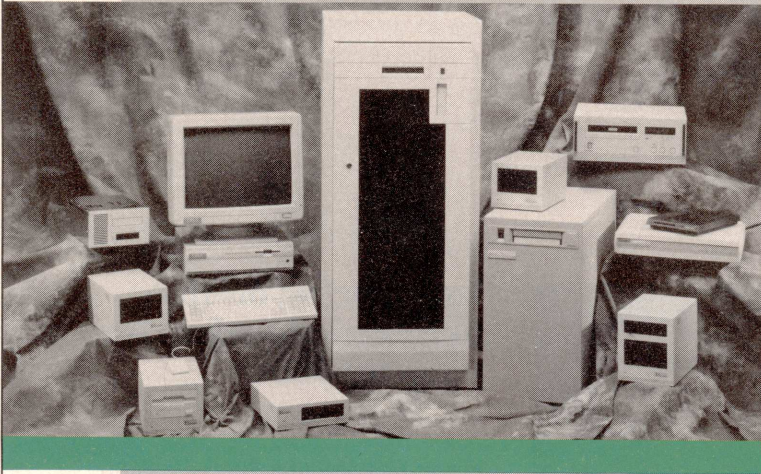
With TurboSTORE/XL II you can use magnetic tape or low-cost HP DDS-format digital audio tape with capacity up to 5 Gbytes or the HP Rewritable Optical Disk Library System with capacity up to 70 Gbytes—enough for a whole week's worth of backups.

Best of all, TurboSTORE/XL II is from HP, so there's no question of hardware compatibility. And future compatibility with evolving HP hardware and software is assured, protecting your investment.

Call 1-800-637-7740, Ext. 2212 for additional information. Call today and sleep better tonight.



Peripheral Vision



When we started integrating solutions at R Squared, we knew that the difference between being a successful systems integrator and being so-so was an intelligent, responsive staff of service engineers.

So when we made a commitment to systems integration, we made sure we did it right. Judging from our success today, you'd say that we had foresight. We say we have a vision about peripherals.

SOLUTIONS FOR HP/APOLLO WORKSTATIONS

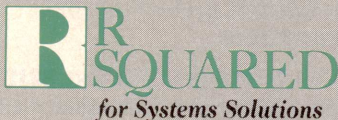
- Disk and tape compatibility for Apollo, Hewlett-Packard and HP/Apollo workstations
- Internal, external and removable high performance disk drives from 200 MB to 14 GB capacity
- 1/2", 4mm DAT, 8mm tape and 1/4" magnetic tape drives

QUALITY PRODUCTS

- Complete line of quality peripherals for HP/Apollo, Sun and DEC Applications
- Unique SCSI testing devices designed by R Squared engineers
- Established reputation in computer industry for high quality, high tech solutions

TECHNICAL SUPPORT

- Qualified hardware and software engineers to diagnose any problem
- Technical labs with full array of test equipment
- On-site installation and maintenance



11211 East Arapahoe Road / Englewood, Colorado 80112
800-777-3478 / 303-799-9292 / Fax 303-799-9297

Fremont, CA 415-438-0800 / Irvine, CA 714-837-0960
Kansas City, KS 913-764-0707 / Salt Lake City, UT 801-595-0631
San Diego, CA 619-484-5668 / Seattle, WA 206-883-3116

lease. Inbound Telnet comes in two flavors, Telnet Access and Telnet Express.

FTP stands for File Transfer Protocol and it's the only program to reside on your HP host. It allows you to transfer files between a UNIX machine and an HP 3000 XL computer system. Because it does reside on the HP 3000, the price is based on cpu size.

Telnet Access can handle up to 40 sessions and comes as a card that slips into a slot in a DTC48. (Older DTC48s may require a memory upgrade.) This product is aimed at smaller systems or where you might need to add access for a few more users.

Telnet Express handles twice the number of sessions (80) and is for a site with considerable Telnet activity. This solution comes as a dedicated box that attaches to your LAN and is treated like a "normal" DTC.

Both Telnet solutions enable you to access an HP 3000 from a Telnet host by having the DTC convert Telnet to AFTP and back again. This protocol translation has been optimized for VPLUS applications. DTC Telnet also has been optimized for accessing hosts across an extended LAN. Both of these products can coexist on your LAN. You may start out with one Telnet Express box and later add a Telnet Access card if needed to a DTC48. These solutions allow you to mix and match to meet your needs.

VPLUS block mode and character mode applications are supported, too. However, as stated in the ARPA Services/XL data sheet, "HP ARPA Telnet does not emulate a particular terminal type or convert control characters. The system you're accessing and the application you're running must support the terminal or terminal emulator you are using." Until the HP MPE XL lab rewrites VPLUS to run on a VT100 terminal, you may want to check out Preview from Tymlabs. Preview allows you run block mode applications on almost any type of terminal.

Many features available to physically connected devices aren't applicable to Telnet users. Type-ahead, powerfail re-

H *P estimates that host-based solutions generate seven times more overhead than its solution on the DTC.*

covery, programmatic access, printer support, and non-VPLUS block mode are all items currently not supported via ARPA Services/XL.

To help get you started on the ARPA Services bandwagon, HP has created two packages to save you money. HP ARPA/40 Services/XL is available for the 920 to the 932 systems. This package contains Telnet Access and FTP. HP ARPA/80 Services/XL has Telnet Express and FTP and is available for the 935 to 980 systems. Both packages are viewed as only an entry point. You can add additional Telnet solutions at a later date as needed.

Travel To New WANs

For WAN (wide area networks) connections there is a lot of good news in the DTC announcement. First, you can add an X.25 card to your DTC16 or DTC48. With this card in place a user on a PAD (Pad Assembler-Disassembler), you can access any system using inbound PAD support via the DTC. As of the HP OpenView DTC Manager release 10.5, inbound Telnet over X.25 is now possible. A remote user running Telnet over X.25 can pass through the DTC X.25 card to a DTC or, transparently, to a host. When connecting to a DTC, the user can manually access his choice of host at the DTC prompt.

This new Telnet option is important for HP 9000 users. X.25 support always meant installing a card in your machine. If only inbound access is required, the DTC X.25 card is a resource that can be shared by hosts throughout the network.

Outbound X.25 access can be shared by connecting the ports of an HP PAD to the ports of a DTC in a "back-to-back" or multiplexor arrangement. Any device connected to a DTC port becomes a resource available to almost every host, HP and non HP, in your network.

Performance across a WAN is always an important issue. HP addresses this in the ARPA Services/XL Technical Data Sheets, which state: "PAD will provide higher performance, less expensive interactive sessions over X.25 than Telnet." As you can probably guess, X.25 is viewed as HP's current solution to WAN connectivity. It's possible to have DTCs located in remote areas of your WAN under the control of the local DTC Manager. Creating an extended LAN has been done quite successfully for customers.

Performance is another topic of great interest. Many protocols, such as TCP/IP, are very cpu intensive. By offloading the communications services from the main processor you save valuable resources. HP estimates that host-based solutions generate seven times more overhead than its solution on the DTC.

Having the software in the DTC and not on a specific host also means anyone can use it. Host-based solutions tend to lock you into communicating with only that host. You also have the additional cost of duplicating the software on all your host machines.

It was about seven years ago that HP released the ATP ports to reduce cpu overhead resulting from communications. Today, with networked systems, we can almost totally eliminate it. You could speculate that the future may find the DTC as a standalone product; it gives us the means to communicate with the world. That's something we were only dreaming about four years ago. —*Tim Cahoon provides wide area network and HP technical support for the manufacturing operations of a Fortune 500 company.*

Would you like to continue to see articles on this topic?
Circle on reader card
yes 346 no 345

CLASSIC 3000

ARE YOU PAYING

TOO MUCH FOR

MAINTENANCE?

ATS Offers:

- Significant Savings from HP Prices
- Free Loaner Equipment Available
- Preventative Maintenance
- "Hot Site" Escalation
- Engineering Improvements
- Remote Diagnostics
- Work to Completion
- Unique Philosophy Account Management

**Send in your configuration
TODAY!!!**

ATLANTIC TECH SERVICES

**18950 Bonanza Way
Gaithersburg, MD 20879**

or

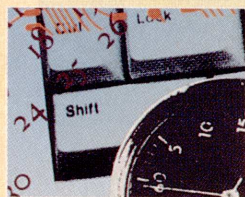
For additional information
call

1-800-525-1060

Offices in selected cities nationwide

CIRCLE 244 ON READER CARD

CIRCLE 244 ON READER CARD



HP-UX

Andy Feibus

The Shell Game

When I started working with UNIX, the first shell I used was

Bourne (**sh**). After two weeks of frustration, I discovered that the C shell (**cs**) provided more features and certain useful tricks; so the C shell became my shell of choice.

I've been using the C shell for about six years. It still provides all of the features that I "need"—aliasing, command history editing, and job control. Sure, some features of the C shell are rickety—editing previously executed commands using substitution commands. However, it's served me well and it's much better than the Bourne shell.

Recently, a new shell has emerged: the Korn shell. It was created at Bell Labs in 1982 and is essentially a superset of the features available with the Bourne shell. HP-UX was one of the first operating systems to include the Korn shell; now SCO UNIX System V/386 Release 3.2.2, IBM's AIX, and AT&T System V Release 4 include it, too.

If **ksh** is your login shell, the following start-up scripts are executed:

■ **/etc/profile** — The system-wide **sh**/**ksh** start-up script. This script usually contains commands that the system administrator wants all users to execute on login.

■ **\$HOME/.profile** — Your local start-up script, containing those commands that you want to execute each time you login. If you're careful, this script can work with both **sh** and **ksh**.

■ **\$ENV** — If you (either in **\$HOME/.profile** or **/etc/profile**) assign a value to the shell variable **BENV** and then **export** this variable, the file name stored in **BENV** is executed each time the **ksh** is invoked (either at login or any time thereafter). One possible value for this

variable is **\$HOME/.kshrc**. This environment file usually contains the definitions of aliases and the setting of certain options.

Shell Variables

To assign a value to the variable name and then **export** it, use the following commands:

```
$ name=value
$ export name
```

or, the single command:

```
$ export name=value
```

An exported variable is one that is part of your environment; commands executed from this environment can obtain the value for this variable. For example, if you assign the value **vi** to the **EDITOR** shell variable, this value isn't available to the **mailx** program until you **export** it.

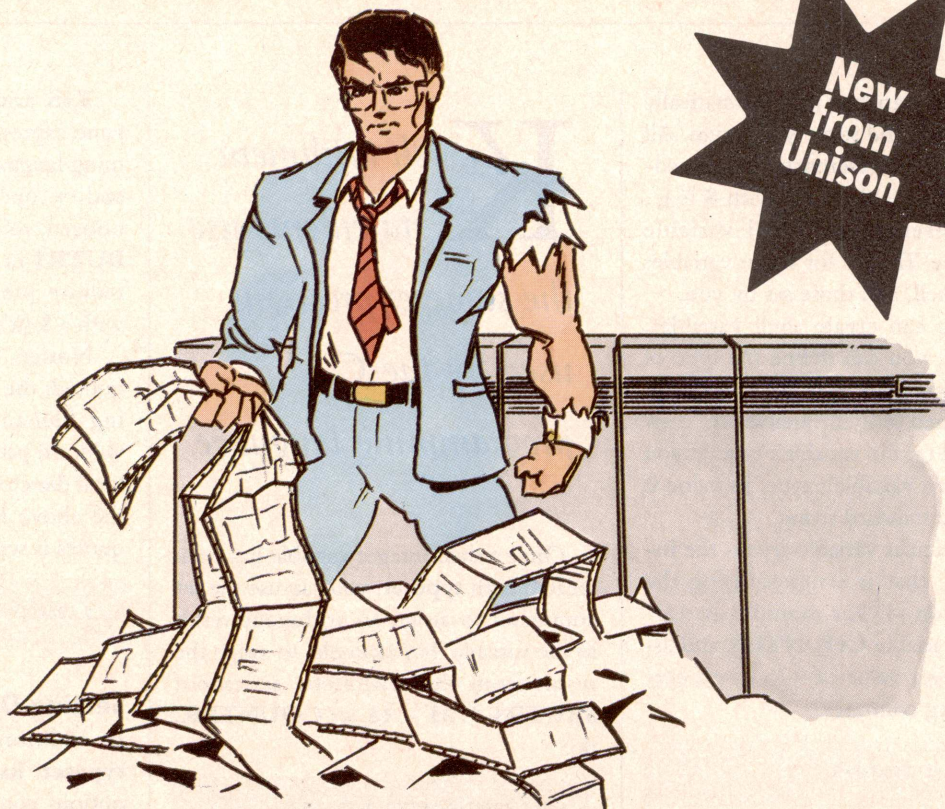
TABLE

Variables Set By The Shell

?	The status value returned by the last executed command.
OLDPWD	The previous working directory set by the cd command.
PWD	The current working directory set by the cd command.

Variables Set By You

EDITOR	The name of the editor you use; certain UNIX programs reference this variable to obtain the name of an editor. If the VISUAL variable isn't set and this variable ends in vi or emacs , then the corresponding option (see set , below) is turned on.
ENV	The name of the shell environment file that is executed each time the shell is started.
HISTFILE	The name of the file used to store the command history.
HISTSIZE	The number of commands stored in HISTFILE .
PATH	The shell search path; the directories within this search path are searched for commands that are executed.
PS1	The value for this variable is expanded to create the primary shell prompt. The character ! in this value is replaced by the command number.
TMOUT	If set to a value greater than 0, the shell will terminate if a command is not issued before the specified number of seconds elapses.
VISUAL	If the value of this variable ends in vi or emacs , then the corresponding command editing option (see set , below) is turned on.



You've fought your last battle with pre-printed forms when you purchase **LASERSOFT™/3000**

The electronic forms application for your laser printer that eliminates pre-printed forms

FREE your DP department from the hassles and expense of pre-printed forms.

STOP juggling print jobs, mounting and un-mounting forms, data misalignment, and last minute print requests.

END delays between job requests and printed output by moving small volume print jobs into the departments that need them.

CREATE and change forms as needed in house and in time.

Lasersoft provides a simple method for creating electronic forms on your HP 3000 for use with your HP laser printers.



Lasersoft gives you the ability to easily integrate electronic forms directly into your existing and future applications.

Lasersoft saves you time and money.



For additional information, or to order a demonstration tape, call, write, or fax:

CIRCLE 473 ON READER CARD



Unison Software, Inc.
675 Almanor Ave.
Sunnyvale, CA 94086
Phone: 408-245-3000
FAX: 408-245-1412

Some shell variables are automatically set by the shell and some you assign. All shell variables are referenced by preceding the shell variable name with \$ (e.g., **\$ENV** references the shell variable **BENV**). See Table 1 for some variables set by the shell, and those set by you.

You also can create shell variables. Within **ksh**, you can define the type of a variable using the **typeset** command. Values assigned to shell variables are converted based on the variable's type. If you don't define a variable's type, its value is considered a standard string.

One particular variable type is the **integer** type, that is assigned using the **typeset** option **-i**. For example, to create a shell variable **COUNTER** and assign an integer value of 9 to it, execute the following command:

```
$ typeset -i COUNTER=9
```

Ksh arithmetic statements use the same expressions used by the C programming language

Once a shell integer variable has been created with **typeset**, you can use the **let** command to assign an arithmetic result to the variable. For example, to assign the result from the arithmetic statement **\$BUTR1 * 25 - 13** to **COUNTER**, do:

```
$ let COUNTER="BUTR1 * 25 - 13"
```

Ksh arithmetic statements use the same expressions used by the C programming language (including the **B?**, **:**, **++**, and **—** operators). As you might have noticed, referencing the integer variable **BUTR1** in the above statement doesn't require preceding the variable's name with a \$ (it's assumed).

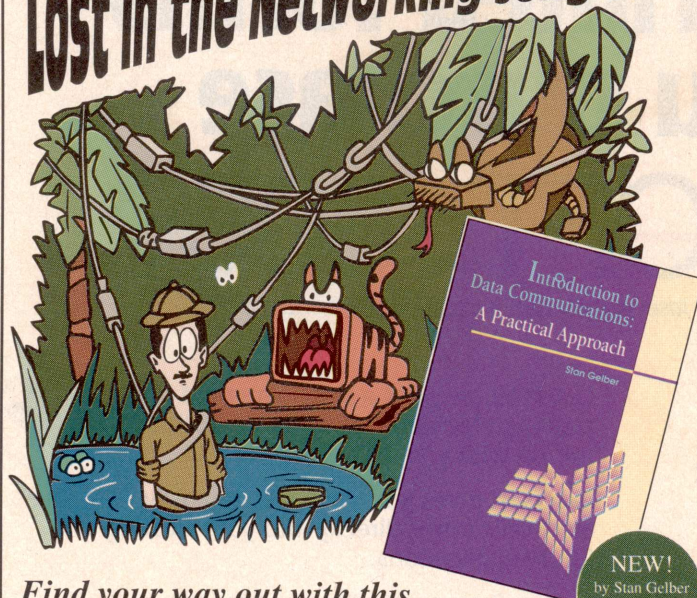
Notice, also, that the statement is quoted; the ***** is otherwise expanded using filename expansion rules (i.e., a wildcard pattern match for the files in the local directory). Another way to perform the above **let** command without using quotes is with:

```
$ COUNTER=$((BUTR1 * 25 - 13))
```

Setting Options

In addition to typing variables using **typeset**, **ksh** also provides a bunch of options you can control using the **set -o** command. For example, to prevent re-

Lost in the Networking Jungle!?



Find your way out with this...

Introduction to Data Communications: A Practical Approach guides you through the tangled mass of networking information. Learn the basics of data communications and networking, and how to configure your own data communications network.

NEW!
by Stan Gelber
Softcover,
280 pages

Cut a clear path through all the technical jargon — use the form below to order your copy today!

ORDER FORM

☐ Send me _____ copy(ies) of *Introduction to Data Communications: A Practical Approach* @ \$39 each, plus UPS shipping.*
(PA residents add 6% sales tax.)

Name _____

Title _____

Company _____

Address _____

City/State/Zip _____

Country _____

Phone () _____

Street address required.

☐ Check enclosed \$ _____.

Charge to: ☐ VISA ☐ MasterCard ☐ American Express

Account No. _____ Exp. Date _____

Signature _____ Date _____

*UPS shipping: In the U.S., \$4 for the first book, \$1 for each additional book. Outside the U.S., please call (215) 957-4265 for shipping information.

For fast, easy ordering . . .

By phone (215) 957-4265 • By FAX (215) 957-1050

On CompuServe 76702,1565



Professional Press Books

101 Witmer Road, P.O. Box 446, Horsham, PA 19044

HPHH1091

direction (i.e., using the **>** to redirect **stdout** to a file) from overwriting an existing file, use the command:

```
$ set -o noclobber
```

Some other options to note:

■ **ignoreeof** — Prevents you from using CTRL-D to **exit** from a shell. Instead, you must use the **exit** (or, for a login shell, the **logout**) command.

■ **bgnice** — Processes placed into background run at a lower priority than foreground jobs.

■ **emacs** — Use **emacs**-style editing for command history editing.

■ **vi** — Use **vi**-style editing for command history editing. When enabled, entering a command is like being in text entry mode in **vi**. Press the ESC key to place you in command mode — that lets you move/edit commands you previously entered. Pressing RETURN executes the command.

To disable an option, use **set** with the **+o** option (instead of **-o**).

Korn Control

Like the C shell, **ksh** provides full job control. Not only can you run a job in foreground (the shell waits for the job to complete before continuing) or background (the shell requests the next job before the current job completes) mode, but jobs also can be suspended.

To suspend a job, you must first assign a **suspend** character via the **stty(1)** command. For example, to use CTRL-Z as your **suspend** character, execute the command:

```
$ stty susp ^Z
```

To monitor the status of background jobs, enter the following command:

```
$ set -o monitor
```

Once **monitor** mode is set, a status line prints when a background job completes. You can move a background or suspended job to foreground mode using the **fg** command; suspended jobs can

be placed into background mode using the **bg** command. Refer to your documentation for details.

Finally, redirection in **ksh** is almost the same as redirection in the Bourne shell. The only exception occurs when **noclobber** mode is set; to override **noclobber** mode, append a **|** to the **>** redirection. For example, if the file **goober** already exists, to overwrite this file with the current date, use the command:

```
$ date >| goober
```

Next time: **ksh** command history and aliases.—*Andy Feibus is an interplatform systems consultant based in Atlanta, GA and author of UNIX, Quick! from Professional Press Books.*

Would you like to continue to see articles on this topic?
Circle on reader card
yes 338 no 337

ASP • 3000 Accounts Payable

only
\$995.00
complete

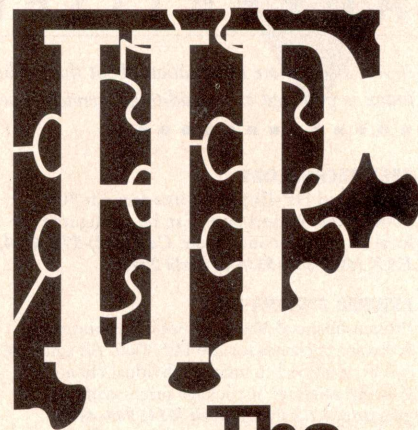
All the features you want including:

- multiuser
- multiple Companies
- multiple Banks
- automatic or manual checks
- cash requirements

Call Today
(914)963-4401

Assured Systems, Inc.
984 North Broadway
Yonkers, NY 10701

CIRCLE 200 ON READER CARD



The Solution to the HPuzzle

With HP systems and peripherals, HP compatible equipment and accessories at competitive prices, why call anywhere else? HP3000, 1000 & 9000, along with the experience, the reputation, and the service you deserve whether you're **buying, selling, or trading HP equipment call —**
800-882-0201

U.S.A. Only



Member:
Computer Dealers
& Lessors Association

11421 NE 120th Street, Kirkland, Washington 98034
206/ 820-6500 FAX: 206/ 820-6565

HP is a registered trademark.

CIRCLE 101 ON READER CARD

ADVERTISER INFORMATION

If you'd like more information about the products from the companies listed below, circle the appropriate number on the reader information card. This index is provided as an additional service. The publisher does not assume any liability for errors and omissions.

APEX TECHNOLOGY

High speed HP-IB printer interface for 3000/9000 system connection. Can be configured for local or remote connection. **Call (602) 577-6414, FAX (602) 299-9133 or circle 290.**

ASSURED SYSTEMS INC.

Proven financial Management/Distribution Software Packages for the HP 3000. All software can be modified to satisfy individual clients. Custom software at package prices with guaranteed reliability. **Call (914) 963-4401 or circle 200.**

BERING INDUSTRIES

Removable mass storage solutions, including hard disk drives, magneto-optical erasable drives, and high-capacity tape back-up for HP 3000/9000/1000 computers. **Call (800) 237-4641, (408) 379-6900 or circle 105.**

CAMINTONN

100% compatible memory for HP 9000, IBM RS/6000, SUN SPARCstations and other workstations. **Call (800) 843-8336 or circle 458.**

CARDINAL DATA CORP.

Sales order/distribution software for the HP 3000 product line. We offer a custom solution at canned prices. **Call (617) 449-0066 or circle 153.**

COGNOS CORP.

Cognos provides application development software for HP MPE V, MPE XL and HP-UX platforms. **Call (800) 4-COGNOS or circle 261.**

COMPUSERVE/COLLIER JACKSON

CompuServe/Collier Jackson serves as a Hewlett-Packard Premier Solution Provider for the HP 3000 Series of midrange computers. Its products include financial accounting and human resource management systems for cross-industry business applications as well as newspaper systems for circulation, business and advertising management. Direct inquiries to: Gary Vigneau, vice president of sales and marketing at (813) 872-9990 **or circle 111.**

COMPUTECH SYSTEMS CORP.

The complete line of HP 3000, 1000 and 9000 equipment, compatibles and accessories. **Call (800) 882-0201 or circle 101.**

CONTEMPORARY CYBERNETICS

Contemporary Cybernetics manufactures a complete family of backup systems that range in capacity from the 150 MB QIC streamer to a 2 TB cartridge handling system. **Call (804) 873-0900, FAX (804) 873-8836, or circle 112.**

DAAI

DAAI provides productivity enhancement tools for Hewlett-Packard's ME10 and ME30. PlotMI, PlotMIUtil and PlotView can plot, print, or view MI files. **Call (201) 836-5508, FAX (201) 836-0565 or circle 461.**

DATARAM

High-performance memory add-ins for HP 9000/345-375-380-400, HP9000/350-370, HP9000/360, HP9000/340, DN30x0, 3500, 4000, 4500, DSP 3000, 4000 Series workstations and servers. High quality and reliability at low prices. **Call (800) 822-0071, in NJ (609) 799-0071 or circle 240.**

DISC

Omniindex provides instant online relational access to corporate data. Combine OMNIDEX, OmniWindow, and OmniQuest for a complete online information system that can be added to any application with little or no code changes—all thru PC-like windows. **Call (303) 444-4000 or circle 113.**

EQUINOX SYSTEMS INC.

Intelligent Data PBXs provide reliable solutions for secure connectivity between multivendor host computers, terminals, PCs and peripherals. **Call (800) 328-2729 or circle 115.**

HERSTAL AUTOMATION LTD.

Reasonably priced data storage subsystems with performance in mind. **Call (313) 548-2001 or circle 119.**

HEWLETT-PACKARD

HP remanufactured products. Remanufactured MPE XL, MPE V and HP-UX systems and peripherals are available from Hewlett-Packard. **Contact your local HP sales office or circle 198.**

HI-COMP AMERICA INC.

Backup for MPE V, MPE XL and HP-UX. High-speed execution, high-density data compression, unattended disk to disk operation and IMAGE database management. **Call (800) 323-8863 or circle 120.**

HYPOINT TECHNOLOGY INC.

Remarketing the full line of HP 3000 equipment. Maintenance in selected cities nationwide. **Call for your HP 3000 needs. (800) 231-5500 or circle 244.**

IEM INC.

Affordable hardware solutions, from memory boards and interface cards to the latest in optical disk technology. **Call (303) 223-6071, (800) 321-4671 or circle 122.**

INFORMATION BUILDERS INC.

4GL/DBMS for HP MPE XL and HP-UX systems offering application development, reporting and decision support. Supported on all major platforms. **Call (212) 736-4433 or circle 247.**

INFOTEK

Leading manufacturer of high-performance HP enhancements including memory, BASIC compilers, data acquisition boards and digital signal processors. **Call (800) 227-0218; in CA (800) 523-1682 or circle 181.**

INTELLIGENT INTERFACES

Plotter/printer buffers, data loggers for HP-IB, IBM PC compatibles, memory expansions for HP computers: Converters for HP-IB/Centronics peripherals. **Call (800) 842-0888 or circle 126.**

ISA CO. LTD.

Complete range of mass storage devices and other peripherals for HP 3000, 1000 and 9000 from ISA. **Call 81-3-(5261) 1160, FAX 81-3-(5261) 1165 or circle 245.**

MARTECH

Highest quality solutions at the lowest price available. Complete line of memory products for HP 9000, 3000 and 1000 computers. Also RAM for Apollo Domain Series 2500-5500. Ship from stock. **Call for your pricing today! Call (800) 582-3555 or circle 220.**

M.B. FOSTER ASSOCIATES LTD.

Utility software supplier, specializing in PC/mini integration, EDI software and customer service and support. WRQ distributor. **Call (800) ANSWERS or circle 168.**

MICOM COMMUNICATIONS CORP.

Marathon servers send free voice and fax with data to remote offices. Free phone demo. **Call (800) MICOM U.S. or circle 465.**

NEWPORT DIGITAL CORP.

Accelerator cards for HP 9000 Series 200 plus HP 310 and HP 320. Ten-fold performance improvement. **Call (714) 730-3644 or circle 246.**

NSD INC.

With job management and MIS productivity products from NSD, your HP 3000/9000 will run smoother, faster and better. **Call (415) 573-5923, (800) 538-3818 or circle 161.**

OAK GROVE SYSTEMS INC.

Printer supplier. Systems or remote spooled solutions for HP 3000/9000 via HP-IB. Labels, bar codes, DP, 300-2000 LPM. **Call (415) 325-1500 or circle 260.**

PACER SOFTWARE INC.

Pacer Software provides communications software allowing MAC users to access all the applications, files and processing power of a UNIX server—at the touch of a mouse. **Call (508) 898-3300 or circle 295.**

TETRA SYSTEMS INC.

High performance analog I/O, DSP, and image acquisition and processing solutions for HP 9000 Series 300, 400 and 700 workstations. **Call (415) 493-7290, FAX (415) 493-7289 or circle 464.**

TYMLABS CORP. BACKPACK

A family of high-speed and unattended backup software for HP 3000s. Free demo. **Call (800) 767-0611 or circle 140.**

TYMLABS CORP. SESSION

Windows application that allows you to connect PCs to HP 3000s and HP 9000s. Supports Windows/286, Windows/386 and Windows 3.0. **Call (800) 767-0611 or circle 141.**

UNISON SOFTWARE

Suppliers of data center management software for the HP 3000. Offices worldwide. **Call (408) 245-3000 or circle 473.**

WALKER RICHER & QUINN INC.

Makers of Reflection Series Software. HP terminal emulation for PCs and Macintoshes. **Call (800) 872-2829 or circle 222.**

The logo features the letters "HP" in a large, bold, sans-serif font. To the right of "HP", the word "Professional" is written in a smaller, elegant serif font.

SPEEDWARE PROVEN FASTEST 4GL WITH ALLBASE

- CASE
- 4GL
- End-User Computing
- Client-Server
- Interoperability
- MPE, MPE-XL
- HP-UX
- MS-DOS
- OS-2
- Colour
- Windows
- SQL

Speedware Version 6, It's New and Exciting. It's everything you need in application development technology.

Speedware Version 6 is without a doubt the most advanced application development toolset available.

Enhance your computer system by developing modern-looking, user-friendly applications with Speedware Version 6, and save time and money as well. Colour, windows, client-server and relational retrieval are only a few of the features that make Speedware more powerful than ever before.

Speedware Version 6 is very easy to implement and use. In fact, it will work extremely well alongside any existing POWERHOUSE, COBOL or other 3GL applications.

Bring the future into your organization today. Contact us at:

Infocentre Corporation

7420 Airport Road, Suite 201
Mississauga, Ontario
L4T 4E5
(416) 678-1841

USA 1-800 447-0745 London (71) 828-1897
In CA 1-800 447-0744 Paris (331) 40740110

Powerhouse is a trademark of Cognos Inc.

CIRCLE 156 ON READER CARD

SPEEDWARE®

Saber-C V3.1 Supports HP 9000 Series 400

Saber Software Inc. announced a new release of Saber-C, its C programming environment for UNIX software developers.

New features include preprocessor support, including embedded SQL preprocessors by Oracle, Informix and other industry standard SQL databases; support for HP 9000 Series 400 workstations; support of dynamic shared libraries on Sun platforms; and support for loading FORTRAN object code.

In separate announcements, Saber announced a major purchase agreement with Sun Microsystems and the integration of Saber-C with HP's SoftBench tool integration platform.

Saber-C Version 3.1 runs under UNIX on HP 9000/300 and 400 Series workstations, Sun-3, Sun-4/SPARC and the DECstation. It's priced at \$2,995.

Contact Saber Software Inc., 10 Fawcett St., Cambridge, MA 02138-1110; (617) 498-3000.

Circle 400 on reader card

Elan License Manager Offers Shorter Key Lengths

Elan Computer Group announced Release 1.4 of its Elan License Manager. The product offers shorter key lengths (as short as 10 characters), easier installation and the ability to nodelock certain licenses to individual CPUs.

Elan License Manager provides UNIX software developers with a mechanism for safeguarding their software from piracy. In addition, it implements a floating license manager to simplify the purchase and sales of software licenses to end users on networks.

Contact Elan Computer Group Inc., 888

Villa St., 3rd Floor, Mountain View, CA 94041; (415) 964-2200.

Circle 399 on reader card

WRQ Gateway Connects HP Desk To MHS-Based E-Mail

Walker Richer & Quinn began shipping MailMessenger for MHS (Message Handling Service), a product that connects HP 3000-based electronic mail systems to MHS-based LAN mail systems and to other host-based mail systems with MHS gateways.

MailMessenger for MHS gives mailbox holders on HP host mail systems, including HP Desk Manager and WRQ's own PostHaste, the ability to communicate electronically with their colleagues on many different kinds of mail systems.

MailMessenger for MHS allows users to exchange both text and binary files and to send and receive mail via their usual E-mail interfaces. It uses WRQ's client-server protocol PPL for communication between the HP 3000 and the LAN. Price is \$5,000. Contact WRQ Inc., 2815 Eastlake Ave. E., Seattle, WA 98102; (206) 324-0350.

Circle 398 on reader card

Digital Tools Announces Motif Version Of AutoPLAN

Digital Tools Inc. released AutoPLAN, graphical project management software for HP 9000 workstations running under HP-UX Motif.

AutoPLAN gives users the ability to do online project planning and monitoring through a "point and click" approach. With its Work Breakdown Structure (WBS) major projects can be subdivided into smaller components (subprojects) that can be run on individual workstations and a super network can be created over the network.

AutoPLAN supports PERT, CPM and Precedence Network methods of planning. It supports PostScript printers and plotters and runs under UNIX on the HP 9000/300 and 400 workstations, as well as the new HP 9000/700 Series, running HP-UX with the Motif operating environment.

AutoPLAN is priced at \$2,995 per license for the floating user version and \$1,495 for the nodelock version.

Contact Digital Tools Inc., 18900 Stevens Creek Blvd., Cupertino, CA; (408) 366-6920.

Circle 397 on reader card

Lawson Develops Accounting System For 800s

Lawson Associates Inc. announced the Lawson Accounting System for HP 9000 Series 800 systems, operating under HP-UX Release 7.0.

Lawson's Accounting System, which maintains all aspects of a company's financial organization, comprises several integrated application packages: general ledger (with optional modules for ratio analysis, cost allocations, flexible budgeting and financial report writing), accounts payable, accounts receivable, fixed assets and project accounting.

Pricing begins at \$20,000 and varies depending on platform size, system configuration and number of users.

Contact Lawson Associates Inc., 1300 Godward St., Minneapolis, MN 55413-1764; (612) 379-0258.

Circle 396 on reader card

NSD Releases Three Products For HP Systems

NSD Inc. announced two new products and one product upgrade for HP systems: TimeSync, InterTask and an upgraded TranSpooler product.

TimeSync is a software utility that automatically synchronizes the internal clocks of computers on a network to within one millisecond of each other. TimeSync supports ARPA Services, LAN Manager, LAN Manager/X and Network Services protocols. Servers and clients are available for a wide range of operating systems including MS-DOS, OS/2, SCO-UNIX, HP-UX, MPE V and MPE XL. TimeSync eliminates manually adjusting and setting the time and date on multiple machines.

InterTask is a client-server facility that allows an HP 3000 MPE system to invoke HP-UX processes on remote HP 9000 nodes over a TCP/IP network. InterTask clients run on HP 3000s and servers run on HP 9000s. InterTask provides a means of integrating MPE and HP-UX production scheduling using established MPE tools. Remote HP-UX processes can be executed by invoking the InterTask client from any HP 3000 on the network. InterTask can be used for both online and batch application interfaces.

TranSpooler is a bidirectional spoolfile relocation program that allows for manual or automatic spoolfile transfer between MPE systems or between MPE and HP-UX systems. Transfers are performed using Network Services over ThinLAN, ThickLAN, EtherTwist or X.25 networks. TranSpooler's new features include the ability to print on IBM hosts through SNA/NRJE. Another new feature is a broadcast facility which sends spoolfiles to multiple nodes from a single node. Spoolfiles can then be distributed to multiple devices, allowing simultaneous distribution of reports to all receivers. Contact NSD, 1400 Fashion Island, Fourth Floor, San Mateo, CA 94404; (415) 573-5923.

Circle 395 on reader card

FOCUS Interfaced To OMNIDEX, ALLBASE/SQL

Information Builders Inc. announced FOCUS interfaces to Dynamic Information Systems Corporation's (DISC) OMNIDEX Information Management Systems and to HP's ALLBASE/SQL relational database management system, operating on the HP 3000 Series 900.

The OMNIDEX interface provides seamless support for both IMSAM and OMNIDEX. IMSAM allows for partial key and sorted sequential access on TurboIMAGE databases, while OMNIDEX provides high speed retrieval and flexibility on TurboIMAGE databases. Prices range from \$2,200 to \$20,680 and are based on configuration.

The FOCUS interface for ALLBASE/SQL provides full read/write access to native ALLBASE/SQL without the need to convert or re-enter data. It's priced from \$4,200 to \$29,400.

Contact Information Builders Inc., 1250 Broadway, New York, NY 10001-3782; (212) 736-4433.

Circle 393 on reader card

CTI Unveils Diskless/Memory Based UNIX

Commercial Timesharing Inc. announced a diskless/memory based version of INTERACTIVE Systems Corp. UNIX along with an integrated CASE toolkit for application software development on HP and Intel platforms.

The new operating system was developed by INTERACTIVE's networking products group with CTI providing the functional design requirements and operating system testing. CTI will document, support and distribute it as the Cell Controller WorkStation (CCWS) version under a master disk licensing agreement from INTERACTIVE.

PC → HP-IB® \$195

LPTalk488™ is a simple software driver and cable that connects your PC or PS/2 to HP-IB (GPIB, IEEE488) printers and plotters at a very affordable price.



Communicate with HP-IB devices using standard application software like Lotus 1-2-3® and AutoCAD®.

For a free HP-IB Interface Solutions catalog, call IOtech: (216) 439-4091.

IOtech, Inc.
25971 Cannon Rd.
Cleveland, Ohio 44146
(216) 439-4091
Fax (216) 439-4093

® HP-IB, Lotus 1-2-3, and AutoCAD are registered trademarks of Hewlett Packard Corp., Lotus Corp., and Autodesk, Inc., respectively.

CIRCLE 129 ON READER CARD

THE TOTAL SOLUTION

sales, service, support

On-time service, on-line equipment—backed by the GE name.

Black River takes the risk and worry out of ordering, implementation and maintenance. You're assured:

■ Full line of new and previously owned, refurbished 9000, 3000 and 1000.

■ Technically trained maintenance team.

■ Free installation with GE maintenance package.

■ Nationwide service backed by GE.

Call 216-365-9950 or fax 216-365-3916 for more information.



GE Computer Service

BLACK RIVER
COMPUTERS

THE TOTAL SOLUTION
sales, service, support

143 YORKSHIRE • ELYRIA, OHIO 44035
216-365-9950

CIRCLE 171 ON READER CARD



INFOTEK SYSTEMS

**Introduces:
The memory you
need for
HP Apollo
Models:**

720

730

750

425e

382

**For immediate
delivery, call
1 (800) 767-1084**

**For the highest quality,
best service and foremost
technical expertise,**

**INFOTEK
SYSTEMS**

**is the only name you need
to know**

**625 S. Lincoln Ave. / Suite 204
Steamboat Spgs, CO 80487**

CIRCLE 196 ON READER CARD

NEW PRODUCTS

The new operating system eliminates the triple cost liabilities associated with initial purchase, maintenance and administration of hard disk drives in industrial environments and/or large networks. Contact Commercial Timesharing Inc., 2650 S. Arlington, Akron, OH 44319; (216) 644-3059.

Circle 392 on reader card

HP Expands DeskWriter Line

HP extended its HP DeskWriter printer line with a model that offers laser-quality color printing for Macintosh printers. HP also announced a high-capacity, black-ink print cartridge for the HP DeskJet (for PC-compatible computers) and HP DeskWriter (for Macintosh computers) family of printers.

The HP DeskWriter C printer produces black or color output with 300 dpi resolution. A new QuickDraw-based printer driver enables users to use all Macintosh word-processing, business-graphics, spreadsheet, presentation and other programs that have black as well as color-output options. The HP DeskWriter C printer is \$1,095.

HP's black-ink print cartridge for the HP DeskJet and HP DeskWriter printers lowers the printing cost of these printers by 25 percent. It prints 1,000 laser-quality pages for about three cents per page.

The new cartridge's redesigned internal mechanism allows the cartridge to hold twice as much ink. It is priced at \$31.95.

QIC Format Tape On HP-UX Workstation

Isahk Co. Ltd. announced the ISA 504x Series QIC tape drive which provides HP-UX workstation users with file backups and data transfer capability to and from other UNIX machines supporting the QIC tape formats.

The 5040 and 5041 are HP-IB interface models that emulate the HP9144 cartridge tape drive with support for the CS80 communication protocol.

The 5040S is a pure SCSI interface

model designed for use with the HP 9000 Series 400 operating under Domain/OS. The 5040S Opt HP-UX supports a modified SCSI interface which enables this drive to operate with the HP 9000 Series 400/700 HP-UX under existing SCSI software drivers.

Contact Isahk Co. Ltd., 1102, 11/F., Austin Pl., 7-9 Austin Ave., Tsimshatsui, Hong Kong; tel: 3674877.

Circle 390 on reader card

ASK Increases MANMAN Functionality

ASK Computer Systems Inc. introduced a new lot tracking module, a suite of report writing tools and Release 8.0 of its MANMAN information management system for HP 3000 computers.

The new offerings include a MANMAN/TRACKER, an integrated lot tracking system, and Interactive Software System's User Data Management System (UDMS), a family of report writing tools designed to enhance existing applications. MANMAN Release 8.0 for the HP 3000 features functional upgrades to six product modules and minor enhancements to all other modules.

MANMAN/TRACKER is priced from \$6,120 to \$78,500. UDMS report generating tools are priced from \$55,400 to \$100,000.

Contact ASK Computer Systems Inc., 2440 W. El Camino Real, Mountain View, CA 94039-7640; (415) 969-4442.

Circle 389 on reader card

JetForm Adds NewWave Support

HP and JetForm Corp. announced that the JetForm line of electronic-forms software will be made available for the HP NewWave desktop software. JetForm will add object-oriented HP NewWave support to its JetForm-Design and JetForm-Filler software products.

HP NewWave features will allow JetForm software to create NewWave objects that provide easy-to-use electronic forms to help companies manage forms production and processing. These new JetForm

objects will include Design Objects, which are used to design new forms, and Form Objects, which are used to make forms or objects or to hold data supplied by users.

JetForm for HP NewWave will be included in the upcoming JetForm Release 3.0. JetForm-Design is \$495 and runs under Microsoft Windows. JetForm-Filler is \$199.

Applix Upgrades Asterix For UNIX Workstations

Applix Inc. released Version 1.1 of Asterix, an open suite of desktop productivity tools for UNIX workstations and X-terminals.

Version 1.1 expands Asterix compound document capabilities to include: audio for voice annotation, color pixel editing and live links to third-party applications. Asterix 1.1 also provides fax support via macros and adds interprocess communications capabilities to the Asterix extension language facility.

Asterix is now available on all HP 9000 workstations, Sun-3 SPARC-based workstations, MIPS R3000 RISC computer systems and DECstation/DECsystem RISC workstations and X-terminals. Contact Applix Inc., 112 Turnpike Rd., Westboro, MA 01581; (508) 870-0300.

Circle 388 on reader card

Oak Grove Systems Updates Printer Line

Oak Grove Systems Inc. (OGS) released the LZR-30 WorkGroup Printer, a PCL level 5 and HP-IB compatible system printer for HP 3000 and HP 9000 platforms.

Designed for word processing, spreadsheets, business graphics, forms overlay and data processing applications, the LZR-30 offers a 30 ppm speed, 300 dpi laser print resolution at a 150,000 page-per-month duty cycle. It's priced at \$16,995 for simplex or \$21,995 for optional duplex mode.

OGS also announced an HP-IB and remote spooled interface board which is incorporated internally in the LZR-16 ScrollWriter printer. Previously, HP 256X system printer and HP293X remote spooled

emulations were not available together, but had to be purchased as two separate external devices. Oak Grove's proprietary design provides both system interface HP-IB and serial remote spooled interface. Users configure for either HP-IB, ATP, ADCC or DTC printer connectivity. Contact Oak Grove Systems Inc., 1550 El Camino Real, Menlo Park, CA; (415) 325-1500.

Circle 387 on reader card

VisionWare Enhances Its X Windows Server

VisionWare Ltd., announced XVision version 4.0 its PC-based server for the X Window System.

XVision enables PCs networked over TCP/IP to one or more host systems (UNIX or non-UNIX) to display multiple X clients alongside Local Windows programs, including support for copy and paste between DOS and X.

This new version supports the X11r4 protocol, including all fonts as well as many X11r4 enhancements and server extensions. It also supports X color classes including support for 256 colors. You can use the host window manager of your choice, or to allow MS Windows to control X clients, you can use any Windows-compatible graphics adapter and display and more.

Contact VisionWare Ltd., 57 Cardigan Lane, Leeds, LS42LE, United Kingdom; 44 532 788858.

Circle 323 on reader card

AICS Research Enhances QueryCalc Report Writer

AICS Research Inc. released Version 2.0 of QueryCalc, its 4GL/report writer/spreadsheet for the HP 3000. V2.0 is a performance release of the report writer. Among other performance improvements, V2.0 incorporates MR-NOBUF serial reads of IMAGE datasets.

Version 2.0 also includes enhanced set manipulation capabilities for qualifying keyed search items in TurboIMAGE, IMAGE and KSAM databases, without regard to the type of database.

First there was translation software. Then there was mapping software. Now there is a solution that includes even more ...

EDI WINDOWS™ introduces the functionality to effectively manage and control the complete EDI process between business application software and value-added networks.

EDI WINDOWS™ uses windows technology on terminals for ease of navigation. Pull down menus and pop-up help included.

To find out more about this exciting new product for Hewlett Packard mini-computers (HP3000 & HP9000) and DEC mini-computers (VMS).

CALL



M.B. Foster Associates Limited

1-800-ANSWERS
(1-800-267-9377)
(613) 448-2333

or
FAX us at (613) 448-2588

EDI WINDOWS™ is a trademark of trinary systems inc.

EDI WINDOWS™

FAX 3000



GET THE POWER!

Send faxes directly from your HP3000 using the:

- MPE Spooler
- Programmatic Interface
- Interactive Interface
- HP Desk or PosteHaste

Combine your data with forms, logos, and signatures to send:

- Correspondence
- Purchase Orders
- Order Acknowledgments
- Spreadsheets
- RFPs and RFQs
- Bills of Lading

AND MUCH MORE!

STR SOFTWARE COMPANY

800-622-0630

THE SOLUTION CENTER

916-622-0630

FAX: 916-622-0738

CIRCLE 175 ON READER CARD

NEW PRODUCTS

Contact AICS Research Inc., P.O. Box 4691, University Park, NM 88003; (505) 524-9800.

Circle 383 on reader card

Cadre Promotes Teamwork/FORTRAN Rev

Cadre Technologies introduced Teamwork/FORTRAN Rev, a tool for reverse engineering of FORTRAN programs and that also provides an easy migration path to CASE.

Teamwork/FORTRAN Rev graphically reveals the structure of existing software, enabling engineers to understand undocumented code, create accurate documentation, identify major components and data structures, and assess the impact of software changes.

This tool automatically generates Teamwork Structured Design charts from FORTRAN source files. These charts can be displayed graphically in Teamwork/SD, incorporated into documentation using document-processing tools like Inter-leaf and Frame, or printed directly.

Teamwork/FORTRAN Rev supports most industry-standard dialects of FORTRAN; the language extensions implemented on HP Apollo, Sun, DEC and IBM workstations; and server IBM mainframe and Cray extensions.

Pricing for Teamwork/FORTRAN Rev begins at \$9,700 for the first seat.

Contact Cadre Technologies Inc., 222 Richmond St., Providence, RI 02903; (401) 351-5950.

Circle 382 on reader card

Dataram Expands Memory For HP Apollo DN3500-5500s

Dataram Corp. doubled the expansion capacity of its memory board for HP Apollo DN3500, DN3550, DN4000, DN4500 and DN5500 Series workstations.

The earlier DR-40 had offered users of the HP Apollo workstations expansion increments of 4 and 8 MB, and now the new DR-40E gives DN5500 users a 16 MB version as well.

A 1-, 4- or 8-MB DR-40E board can be installed in a DN3500, DN3550, DN4000,

DN4500 or DN5500 workstation, boosting total memory to either 16 or 32 MB.

Four 16-MB boards bring memory capacity in the Series DN5500 up to its maximum of 64 MB.

All three versions of the DR-40E can be intermixed in the DN5500 Series, thus providing users with an even wider spectrum of memory configuration options.

The 4 MB version sells for \$820, the 8 MB version for \$1,500 and the 16 MB version for \$3,000.

Contact Dataram Corp., P.O. Box 7528, Princeton, NJ 08543-7528; (609) 799-0071.

Circle 381 on reader card

Logicraft's Omni-Ware Available On HP Systems

Logicraft Inc. announced that its Omni-Ware product line now supports HP Apollo 9000 Series 400 workstations running HP-UX. Omni-Ware is a high performance server that provides HP Apollo 9000 Series 400 users with access to MS-DOS version 3.3 and up, OS/2, SCO UNIX, and MS-Windows applications.

DOS sessions can be started through Motif. Data can be transferred between windows with standard copy and paste tools. Logicraft provides MS-Windows 3.0 drivers that let you use the monitor's full display area. An optional VGA video emulation supporting up to 256 simultaneous colors also is available.

Omni-Ware supports logical disks up to 480 MB. These logical disks fully emulate PC/AT fixed disks. Local hard disks are available as options. Users can access the remote logical disks and local hard disks simultaneously. With logical disks, PC files are stored on the host's disks providing file security and backup, PC files also may be stored on the local hard disks.

Contact Logicraft Inc., 22 Cotton Rd., Nashua, NH 03063; (603) 880-0300.

Circle 379 on reader card

Camintonn Offers Memory For 9000/425e

Camintonn Corp. introduced its CMH-9425e memory expansion module for the

HP Apollo 9000/425e.

Camintonn CMH-9425e modules, which are fully compatible with HP memory controller hardware, diagnostics and operating systems are available in 4, 6 or 8 MB ECC memory upgrade kits. Each kit consists of a pair of SIMMs that can be installed into the HP 9000/425e system processor unit. The 4 MB kit uses 1 megabit SOJ DRAM, the 8 and 16 MB versions use 4 megabit SOJ DRAM for maximum density and minimum power consumption. All modules support advanced single-bit error correction and double-bit error detection.

List price for CMH-9425e modules is \$800 for 4 MB, \$1,600 for 8 MB and \$3,200 for 16 MB.

Contact Camintonn Corp., 22 Morgan, Irvine, CA 92718; (714) 454-6500.

Circle 378 on reader card

Fibronics Adds HP Apollo Protocol Support

Fibronics International introduced HP Apollo protocol support for its FDDI product line, System Finex. The Fibronics FX8210 translation bridge now provides transparent communication between FDDI direct attached workstations for HP and workstations attached to Ethernets.

The FX8210 translation bridge supporting HP Apollo traffic is fully interoperable with all other components of System Finex. And FX8210 is interoperable with FDDI bridges from DEC and FDDI direct attached workstations from Silicon Graphics, MIPS and Sun. Fibronics SNMP-based network management system, Interview, provides control, management and monitoring of the entire FDDI network and all attached subnetworks, such as Ethernet and Token Ring. Contact Fibronics International, Communications Way, Independence Park, Hyannis, MA 02601-1892; (508) 778-0700.

Circle 377 on reader card

HP Enhances LaserRX, RXForecast And GlancePlus/V

HP released a new version of HP LaserRX software for MPE V, MPE XL and UNIX

systems that has a record-and-playback feature that can automate repetitive tasks, such as graph printing and multiple cpu analysis. In addition, the software offers macros that can be recorded and played back from the LaserRX user interface as well as an MS-DOS command line. Both software versions support HP NewWave version 3 and Microsoft Windows version 3.0.

HP also announced an enhancement of HP RXForecast software for MPE V and MPE XL systems that enables users to determine how many active jobs or sessions may occur during a future timeframe. This forecasting depends on information from HP LaserRX, that collects data on the number of active jobs and sessions running on a given system during a given time.

And, an enhanced version of HP Glance Plus/V incorporates cpu, disk and memory detail screens as well as user-defined filters, and helps users isolate and resolve performance bottlenecks with greater ease.

Trinary Systems Unveils EDI Windows

Trinary Systems released EDI Windows, an EDI control and translation software product designed to meet both customer and vendor requirements through a single source.

EDI Windows can support concurrently multiple versions of X12, EDIFACT, TDCC, UCS and WINS standards, to include all industry and trading partner specific subsets. Connections to all public value added networks and most private networks are available.

EDI Windows "Jobs" can be defined to perform communications, transfer data, execute EDI translation, send mail, create reports, update applications, extract data from applications and/or execute user programs. Jobs can run on demand, on an unattended schedule, or as called from within user programs.

Contact Trinary Systems Inc., 17187 N. Laurel Park Dr., Ste. 348, Livonia, MI 48152; (313) 462-0056.

Circle 376 on reader card

1000
EVERYTHING IN
HEWLETT-PACKARD
3000
FROM ONE
RELIABLE SOURCE
9000
TEST

BUY

SELL

RENT

REPAIR

➤ 80/100 SERIES

➤ 200 SERIES

➤ 300 SERIES

➤ 400 SERIES

➤ 500 SERIES

➤ 700 SERIES

➤ PRINTERS

➤ PLOTTERS



TSA

1-800-422-4872

Tel 713/935-1500 • Fax 713/935-1555
2040 West Sam Houston Parkway North
Houston, Texas 77043

CIRCLE 137 ON READER CARD

Datasys

COMPUTER CORPORATION

BUY • SELL • LEASE • TRADE

Hewlett-Packard

- SYSTEMS
- UPGRADES
- MEMORY
- PERIPHERALS

Call Today 800-DATASYS
(328-2797)

Dallas Oklahoma City
(214) 980-0153 (405) 946-0440
FAX (214) 980-2616 FAX (405) 947-3046

CIRCLE 455 ON READER CARD

NORCO COMPUTER SYSTEMS, INC.

Hewlett-Packard Quality
at a NorCo Price

1000 • 3000 • 9000 • 250

BUY — SELL
TRADE — LEASE

Processors, Peripherals
and Systems

21337 Drake Road
Cleveland, OH 44136-6620
FAX: 216-572-0636
216-572-4040 1-800-892-1920
(Outside Ohio)

CIRCLE 221 ON READER CARD

WHOLESALE H-P

"There's simply no reason to pay more."

Purchasers, Resellers and Component
Level Repairers of Hewlett Packard
Micro and Mini Computers
and Peripherals.

Spectrum • 9000 • 3000 • 1000 • MICRO

For Sales Please Call:

Mark Leonard
(202) 338-2429

1908 14th Street, N.W.
Washington, DC 20009
FAX: (202) 338-2462

EQUIPMENT
RESOURCES,
INC.

CIRCLE 213 ON READER CARD

9000, 3000, 1000
SYSTEMS
PERIPHERALS
COMPATIBLES

Buy • Sell • Trade
Maintenance



(US) 800 882-0201
(206) 820-6500
FAX (206) 820-6565

CIRCLE 207 ON READER CARD

The HyPoint Advantage . . .
INVENTORY

"Specializing in Full
Line of
HP 3000 Products"

Buy ■ Sell ■ Trade ■ Lease

HyPoint Technology
600 Ken Mar Drive
Cleveland, OH 44147

1-800-231-5500
216-526-0323

CIRCLE 217 ON READER CARD

ELECTRONIC SERVICES, INC.

Est. 1973

Preowned
Hewlett Packard

Buy • Sell • Trade

Specialize in 9000/500
Sales and Repair

The Product is Guaranteed
The Price is Right
The Phone Call is Free
5187 Malaga Alcoa Hwy
Malaga, WA 98828
FAX 509 662-8271

509-662-9039

CIRCLE 212 ON READER CARD

GET HEWLETT-PACKARD
QUALITY FOR LESS

SAVE UP TO 60%

Refurbished
& Guaranteed

Call Bill Alexander
708-352-0300
FAX 708-352-0326

BUY
SELL
RENT
1000
3000
9000

gmi COMPUTER
MEDIA INC.

CIRCLE 172 ON READER CARD

BUY • SELL • TRADE

COMPLETE HP SYSTEMS AVAILABLE

ALL PERIPHERALS

All items in stock — immediate delivery
All warranted to quality for
manufacturer's maintenance.

ConAm Corporation

Canada/US 800-926-6264
California 213-419-2200
FAX 213-419-2275

RENT • LEASE

CIRCLE 210 ON READER CARD

HP-1000

BUY • SELL • TRADE • RENT

Hewlett-Packard
Computer Equipment

Complete product line
including Systems, Memory,
Discs, and Tapes.



HERSTAL
AUTOMATION LTD.
3171 West Twelve Mile Road
Berkley, Michigan, USA 48072
Telex 650-321-1560
FAX 313-548-2010
Phone 313-548-2001

CIRCLE 216 ON READER CARD

OUR 12th YEAR

QUALITY HP EQUIPMENT WITHOUT THE HP PRICE



DON'T UPGRADE YOUR HP SYSTEM UNTIL YOU GET A SECOND OPINION FROM THE SECOND SOURCE FOR HEWLETT-PACKARD 1000-3000-9000 EQUIPMENT

Consult with us about cost-saving alternatives

- Complete Configurations
- Individual CPUs-Peripherals
- Cumulus, IEM, Data Products & Compatibles
- Memory Upgrades and Feature Enhancements

WE BUY
Highest Prices Paid

WE SELL
*All Items Sold Are Guaranteed for HP Maintenance
*Short and Long Term Leases Available

WE TRADE
Over 1000 satisfied Hewlett-Packard users are our customer references throughout the United States, Canada, Europe, and the Far East.

C.S.U. Industries, Inc.
207 Rockaway Turnpike, Lawrence, NY 11559
Ask for Mord: (516) 239-4310 FAX (516) 239-8374

OUR 12th YEAR

CIRCLE 205 ON READER CARD

BUY • SELL TRADE HP!

SYSTEM WAREHOUSE

32A • 2933A • 2934A • 2225A/B/C/D THINKJET • 2310 • S/320 • S/318 • S/319 • S/330 • S/332 • S/34350 • S/345 • S/375 • S/370 • 98568A • 98570A • 9816A/S • 9817A/H • 9826A/S • 9836A/C/U/CU • 992EMORY • 80/100 SERIES • ROMS • INTERFACES • 27A • 9153A/B/C • 7945/46A • 7957A/B • 7958A/B • 70A • 7440A • 7475A • 7550A • 7570A DRAFT PRO • 76A EXL • 7580B • 7585B • 7590A • 7599A DM • 440A LJII • 33447A LJII D • 33471A LJII P • 9144A • 401A • 7978A • 7978B • 7980A • 7980X • 2563A/B • 66A/B • 2932A • 2933A • 2934A • 2225A/B/C/D THINKJET PLUS • S/310 • S/320 • S/318 • S/319 • S/340 • S/360 • S/350 • S/345 • S/375 • S/370 • 985677A • 9888A • 9816A/S • 9817A/H • 9826A/S • 9820A/U • INTERFACES • MEMORY • 80/100 SERIES • EMORY • 9122D • 9127A • 9153A/B/C • 7945/46A • 639 • 7470A • 7470A • 7440A • 7475A • 7550A • 7575A DXL • 7576A EXL • 7580B • 7585B • 7595A DM • 0/D/ESTAT • 33440A LJII • 33447A LJII D • 33471A • 45A • 35401A • 7978A • 7978B • 7980A • 7980X • 66A/B • 2932A • 2933A • 2934A • 2225A/B/C/D THINKJET PLUS • S/310 • S/320 • S/318 • S/319 • S/340 • S/360 • S/350 • S/345 • S/375 • S/370 • 985677A • 9888A • 9816A/S • 9817A/H • 9826A/S • 9820A/U • INTERFACES • MEMORY • 80/100 SERIES • EMORY • 9122D • 9127A • 9153A/B/C • 7945/46A •

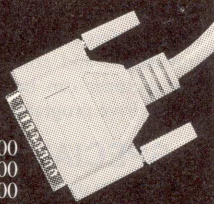
800-877-7339

FAX: 713-944-5479

CIRCLE 251 ON READER CARD

AMTEK

YOUR HP CONNECTION



1000
3000
9000

• BUY • SELL • SERVICE •

1-800-765-0331

Los Angeles • Washington D.C. • Tampa

CIRCLE 206 ON READER CARD

23 Years In The HP Market.

HP

1000/3000

- Sell, Lease, Rent, Buy
- Repair & Exchange
- NJ /NY Maintenance
- Disaster Recovery

Computer Solutions, Inc.
201 / 672-6000 Fax 201 / 672-8069

CIRCLE 209 ON READER CARD

WE FIX H-P

- Expert Depot Repair
- 5-day Turnaround
- Buy and Sell
1000/3000/9000

CRISIS

800-729-0729

CIRCLE 211 ON READER CARD

HEWLETT-PACKARD 9000 IT'S OUR SPECIALTY. NEW/USED

PRINTERS PLOTTERS
LaserJets DraftPros
DeskJets DraftMasters
Rugged Writers Electrostatics

WORKSTATIONS

Series 80, 200, 300, 400

We offer large discounts, outstanding service and immediate delivery. Call us before you buy a printer or plotter!

TED DASHER & ASSOCIATES

(205) 591-4747 or (800)638-4833
Fax: (205)591-1108


CIRCLE 233 ON READER CARD

Make Tracks...

... to your nearest mailbox and send for the latest copy of the free Consumer Information Catalog.

It lists about 200 free or low-cost government publications on topics like health, nutrition, careers, money management, and federal benefits. Just send your name and address to:

**Consumer Information Center
Department MT
Pueblo, Colorado 81009**



SURVIVORS ARE FAST AND LIGHT.

Escape the Data Jungle - with PocketReader™! A Portable Bar Code Reader That Won't Slow You Down!

1-800-873-7266

PERCON

INCORPORATED

Powerful Technology. Service You Can Count On.

I/O Data Systems, Inc.

3000/9000/1000

HP

BUY/SELL/TRADE

(216) 835-2211
27378 W. Oviatt
Bay Village, OH 44140
FAX (216) 835-0220

CIRCLE 272 ON READER CARD

NOW AVAILABLE

SONIC DIGITIZERS

The lightweight, compact GP-9 is the new professional standard in digitizers. Installation and configuration to emulate any digitizer can be done with a simple menu drive program.

SPECIAL FEATURES

- *Digitize up to 36" x 48"
- *No Tablet Needed
- *Portable
- *32 Function Programmable Template
- *Low Price



**TED DASHER
& ASSOCIATES**

4117 Second Ave. So.
Birmingham AL 35222
(205) 591-4747
Fax: (205) 591-1108
(800) 638-4833

CIRCLE 174 ON READER CARD

HEWLETT-PACKARD

1000 • 3000 • 9000

BUY * SELL * RENT * LEASE
MAINTENANCE

PROCESSORS • PERIPHERALS • SYSTEMS

EURODATA INC.

(613) 745-0921

Fax: (613) 745-1172

2574 Sheffield Road, Ottawa, Canada K1B 3V7

CIRCLE 283 ON READER CARD

HEWLETT-PACKARD

BUY
and
SELL

REPAIR
and
SERVICE

ADVANT

Computer Exchange

HP Systems Specialists

US (800) 824-8418

CA (415) 623-1733

FAX (415) 623-1736

CIRCLE 202 ON READER CARD

TUNE INTO HP

Pre-owned Equipment

3000	Peripherals	9000
•••••	•••••	•••••
BUY	SELL	TRADE

WORKSTATIONS
CPUs
DISC & TAPE DRIVES
TERMINALS & PRINTERS
3000/9000 MEMORY

Lynne Company

(Calif) 805-489-1564
(Outside Calif) 1-800-338-5019
(Fax) 805-481-3799

CIRCLE 219 ON READER CARD

BUY, SELL LEASE, TRADE.

Hewlett Packard



23950 COMMERCE PARK, BEACHWOOD, OHIO 44122
(216) 292-0635 Fax: 216-292-4838 Telex: 205129
CRC is a Trademark of Computer Remarketing Corporation

CIRCLE 208 ON READER CARD

HP 3000

Buy — Sell — Trade
Hewlett Packard Equipment

CALL

713-690-1100

(Fax) 713-690-1130

**Surety
Systems**

8850 Jameel Road, Suite 140
Houston, TX 77040

CIRCLE 226 ON READER CARD

HP EQUIPMENT

WE BUY AND SELL HP

1000/3000/9000

PERIPHERALS
MEMORY

CALL FOR PRICING

(813) 799-2009

FAX 813-791-6699



**HARBORSIDE
MARKETING INC.**
2519 McMULLEN BOOTH RD.
CLEARWATER • FL 34621
SUITE 510-143

CIRCLE 215 ON READER CARD

Ideal

Computer

Services

Since 1983

BUY • SELL & SERVICES

Hewlett Packard

2392A's

Quantities Available at

\$395.00

415-447-4747 FAX 415-447-4780

CIRCLE 297 ON READER CARD

INFORMATION

Rates: 1 time: \$475
3 times: \$425
6 times: \$375
12 times: \$325

COLOR NOW AVAILABLE—\$100

Size: 1/9 page — 2 3/16" x 2 3/4"

Typesetting and composition
available.

Camera ready mechanical required.

For more information call:

Jane Hope
(215) 957-4221

HP OPPORTUNITIES NATIONWIDE

- CompuSearch of Chatham County is staffed by former HP professionals.
- Over 110 CompuSearch offices nationwide.
- Financial Analysis Service (FAS) with Resource Center, nationwide hotline, financial experts and real estate specialists available free of charge to help you make an informed relocation decision.

For a description of current opportunities or for general advice on your job search, call or write:

JERRY LINDSEY - JOE RUKENBROD



CompuSearch
of Chatham County
5 Cole Park Plaza
Chapel Hill, NC 27514
Phone: 919-942-6722
Fax: 919-942-5327

CIRCLE 232 ON READER CARD

HP CAREERS NATIONWIDE

Winning combinations of these skills can propel YOU into some of the best companies!!!

- COBOL, FORTRAN, 4 GL's
- ASK, MM3000
- Manufacturing, Accounting, MRP
- MPE-XL, Image Internals
- Networking, Communications

Call - Amos & Associates



Diane Amos, C.P.C.

633-B Chapel Hill Road
Burlington, N.C. 27215
(919)-222-0231
FAX: (919)-222-1214

CIRCLE 204 ON READER CARD

Saudi Arabia

Positions available for:

- Project Manager, Clinical & Admin.
- Sr. Systems Software Specialist (x2)
- Systems Analyst
- Database Specialist
- Program Analyst

All positions require BS in Computer Science & at least 5 years HEALTHCARE & HP EXPERIENCE.

For more information, contact Tammie at:

KAMA ENTERPRISES, INC.
Dept. HPP
4380 SW Macadam Ave., Suite 490
Portland, OR 97201
800-433-7791

CIRCLE 471 ON READER CARD

REPRINTS?

If you would like reprints of any article or advertisement, contact:

Jim Lewis or Roxanne Edwards at
Reprint Management Services,
505 East Airport Road
P.O. Box 5363
Lancaster, PA 17601
(717) 560-2001
FAX (717) 560-2063

Why WTW?

Because You're The Best

Wesson, Taylor, Wells - one of the nation's premiere software consulting firms - needs superior programmer/analysts with application development expertise in any HP environment.

Stability: Choose to work full-time with excellent salary and benefits or on an hourly basis.

Professional Growth: Expand your horizons by developing state-of-the-art systems.

Diversity: Escape the routine by contributing to the success of challenging projects for varied clients.

If you have the expertise we demand and need a career without limits, take charge.

Contact WTW today. Confront your future.

1-800-833-2894

An equal opportunity employer.



CIRCLE 231 ON READER CARD

Senior programmer/analysts needed with 2 years or more of application development expertise in an HP environment.

- | | |
|--------------|--------------|
| ▲ TRANSACT | ▲ ORACLE |
| ▲ POWERHOUSE | ▲ OMNIDEX |
| ▲ SPEEDWARE | ▲ MM/3000 |
| ▲ PROLOS | ▲ PM/3000 |
| ▲ COBOL | ▲ CUSTOMIZER |
| ▲ FORTRAN | ▲ MANMAN |
| ▲ HP-UX | ▲ OMAR |

Send your resume immediately or call today:

Wesson, Taylor, Wells
P.O. Box 12274
Research Triangle Park, NC
27709-2274

1-800-833-2894

An equal opportunity employer.



When You're The Best At HP

Try WTW!

CIRCLE 180 ON READER CARD

Worth writing for.

If you're looking for some good reading, you've just found it. The free Consumer Information Catalog.

The Catalog lists about 200 federal publications, many of them free. They can help you eat right, manage your money, stay healthy, plan your child's education, learn about federal benefits and more.

So sharpen your pencil. Write for the free Consumer Information Catalog. And get reading worth writing for.

Consumer Information Center
Department RW
Pueblo, Colorado 81009

U.S. General Services Administration.

America's Competitive Edge... American Workers.

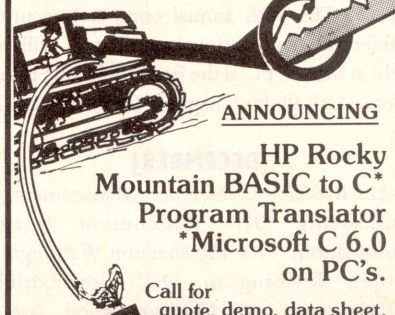
Across the U.S., companies and unions have dramatically improved productivity, quality, and employment security by tapping the ideas of some willing and able partners—American workers.

To find out how your company can tap this valuable resource, write:



Elizabeth Dole
Secretary of Labor
U.S. Department of Labor
Room N-5419
Washington, DC 20210

We can move mountains!



ANNOUNCING

HP Rocky Mountain BASIC to C* Program Translator
*Microsoft C 6.0 on PC's.

Call for quote, demo, data sheet.

Call us. **OSWEGO SOFTWARE**
Box 310
708/554-3567 Oswego, IL 60543
FAX 708/554-3573 U.S.A.

CIRCLE 223 ON READER CARD

SOFTWARE

ADVERTISERS INDEX

Reader Service Number	Page	Reader Service Number	Page
290 Apex Technology	60	196 Infotek Systems	84
200 Assured Systems	79	126 Intelligent Interfaces, Inc.	37
105 Bering Industries	17	129 IOTech	83
171 Black River Computers	83	466 Ki Research, Inc.	96,I.B.Cover
184 Bradmark Computer Systems	5	475 Leasametric	4
458 Camintonn Corporation	61	123 M.B. Foster Associates	47
153 Cardinal Data	35	168 M.B. Foster Associates	85
467 Central Data	67	220 Martech	52
261 Cognos Corporation	1	465 MICOM Communications	
111 Collier-Jackson	55	Corp.	25
101 CompuTech Systems Corp.	79	154 Mitchell Humphrey	41
112 Contemporary Cybernetics Group .	19	246 Newport Digital Corporation	9
461 DAAI	13	161 NSD, Inc.	57
240 Dataram Corporation	11	260 Oak Grove Systems, Inc.	71
113 Dynamic Information		295 Pacer Software, Inc.	27
Systems Corp.	38-39	Professional Press Books	66
115 Equinox Systems, Inc.	69	Professional Press Books	78
474 FedUNIX '91	95	Professional Press Books	94
119 Herstal Automation	21	179 R Squared	74
198 Hewlett Packard/Finance		175 STR Software Co.	86
& Remarketing	59	245 Texas ISA, Inc.	53
Hewlett Packard/TurboSTORE		137 TSA	87
Division	73	265 Tynlabs Corp.	14-15
288 Hewlett Packard/Workstations .	48-49	243 Tynlabs Corp.	33
Hewlett Packard/Worldwide		141 Tynlabs Corp.	62-63
Customer Support	28-29	457 Tynlabs Corp.	93
120 Hi-Comp International	45	468 Unified Software Systems	36
244 Hypoint Technology	75	473 Unison Software	77
122 IEM, Inc.	2	127 Walker Richer & Quinn,	
156 Infocentre Corp.	81	Inc.	6-7
247 Information Builders, Inc.	23	145 Walker Richer & Quinn,	
181 Infotek Systems	I.F.Cover	Inc.	B.Cover
135 Infotek Systems	12	469 Zentec/Datamaxx	60

[CALENDAR]

[NOVEMBER]

11-13: BIS Strategic Decisions is sponsoring EUROFAX, the conference and exhibition for all fax-related products and services at the Swisotel in Dusseldorf, Germany. Call Carol Le Plar 0582 405678.

11-13: The 18th annual computer security conference and national exhibition will be held in Miami, FL, at the Fontainebleau Hilton Hotel. Call Philip Chapnick (415) 905-2267.

[DECEMBER]

9-11: Meckler Conference Management is sponsoring DIA (Document Image Automation) '91 at the Sheraton Washington Hotel, Washington, D.C. For exhibit information, call Marilyn Reed, for a conference program call Kim Devan at (203) 226-6967 or (800) 635-5537.

FAME Computer Education sponsors several courses for HP Apollo, UNIX, Aegis, Domain/OS, HP-UX and Future OSF Users.

SR10 Administration: 11/11

Aegis Shell Scripting: 12/2

UNIX for Aegis Users: 12/16

TCP/IP: 11/4

X Windows Use And Administration: 11/6

Bourne Korn Shell Scripting:

For more information, call Fred Mallett (612) 888-6009.

The Association of Contingency Planners, N. California Chapter, will hold monthly meetings the last Thursday of every month in San Ramon, CA. ACP focuses on disaster and business recovery planning and issues. Call Stacey Jonasen (415) 765-2270 or Belinda Tovar (510) 460-1623.

ADVERTISING SALES OFFICES

Leslie Ringe, Associate Publisher
(617) 861-1994

CANADA

(215) 957-1500

Helen B. Marbach, Regional Sales Manager
101 Witmer Road
Horsham, PA 19044
FAX (215) 957-4264

NEW ENGLAND

(617) 861-1994

Alonna Doucette, Regional Sales Manager
Marissa Scibelli, Account Executive
238 Bedford St., Ste. 3
Lexington, MA 02173
FAX (617) 861-7707

MID-ATLANTIC

(215) 957-1500

Mark Durrick, Eastern Regional Manager
Mike Friedenberg, Account Executive
101 Witmer Road
Horsham, PA 19044
FAX (215) 957-4264

MIDWEST & SOUTH

(215) 957-1500

Peter Senft, Regional Sales Manager
101 Witmer Road
Horsham, PA 19044
FAX (215) 957-4264

NORTHERN CALIFORNIA & NORTHWEST

(415) 873-3368

Judy Courtney, Regional Sales Manager
903 Sneath Ln., Ste. 220
San Bruno, CA 94066
FAX (415) 873-6608

SOUTHERN CALIFORNIA & SOUTHWEST

(818) 577-5970

David Beardslee, Western Regional Manager
Karin Altonaga, Regional Sales Manager
Mary Marbach, Account Executive
1010 E. Union St., Ste. 101
Pasadena, CA 91106
FAX (818) 577-0073

INTERNATIONAL

(617) 861-1994

Leslie Ringe, Regional Sales Manager
Marissa Scibelli, Account Executive
238 Bedford St., Ste. 3
Lexington, MA 02173
FAX (617) 861-7707

(215) 957-1500

Cheryl Bortman, Marketing Services Manager
Mary Browarek, Card Deck Manager
Cathy Dodies, List Rental Manager
Jane L. Hope, List Rental Sales

HP Professional

Everything you ever wanted in an XL system backup. And less.

Less Manpower.

(With BackPack[®]/XL you can perform
unattended backups.)

Less Storage Media.

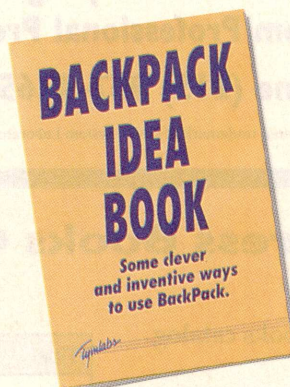
(BackPack/XL lets you compress your data
by as much as 4 to 1.)

Less Cost.

(BackPack/XL prices start at just \$1,600.)

Less Information.

(Just kidding. Call and ask for a free copy
of the BackPack Idea Book.)



1-800-767-0611

With BackPack/XL, less is more.

Tymlabs

Tymlabs Corporation
811 Barton Springs Road
Austin, TX 78704 USA
(512) 478-0611
Fax (512) 479-0735

Tymlabs (UK) Ltd.
Munro House, 9 Trafalgar Way
Bar Hill, Cambridge, UK CB3 8SQ
0954-780088
Fax 0954-780001

Wick Hill Associates
U.K. 0784-438441

Mandata
West Germany 02151-58900

Megatec
Australia 03-874-3633

Tymlabs-APPIC
France 64-54-87-37

Infosistemas Financieros
Mexico 254-3284

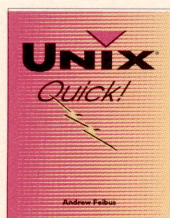
Singapore Computer
Singapore 011-65-441-2688

Quant Systems
Netherlands 2503-40334

Excelco Oy Ltd.
Finland 358-0-8797212

CIRCLE 457 ON READER CARD

When it comes to learning the UNIX® operating system or C programming, there's always an easier way

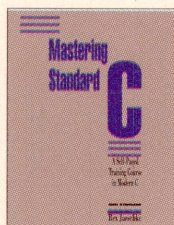


UNIX, Quick!

For DOS users who need to learn the UNIX system . . . fast!

A beginner text in three easy-to-follow sections makes learning UNIX — quick!

Andrew Feibus, 249 pages, \$30



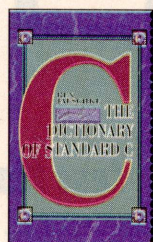
Mastering Standard C — A Self-Paced Training Course in Modern C

An ANSI standard C tutorial from leading expert Rex Jaeschke

Programmers and other hands-on computing pros can study looping

and testing, arrays, functions and pointers, the C preprocessor, standard library I/O routines and more.

Rex Jaeschke, 366 pages, \$40



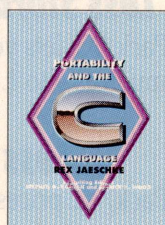
NEW! Available 12/91

The Dictionary of Standard C

A definitive glossary of modern C terms

This convenient and comprehensive dictionary of standard C terminology is a handy tool for C programmers of all levels.

Rex Jaeschke, 187 pages, \$24



Portability and the C Language

Rex Jaeschke's how-to text on porting C programs

Step-by-step instructions teach how to port programs between different architectures and operating systems

and how to write portable code. Includes the complete C run-time library.

Rex Jaeschke, 382 pages, \$19

Make learning or teaching UNIX and C programming skills easier — order these titles from Professional Press Books today!

Call Wendy to order by phone (215) 957-4265 or FAX (215) 957-1050

UNIX is a registered trademark of UNIX System Laboratories, Inc.



Professional Press Books Order Form

☐ Please send me a free Professional Press Books catalog.

☐ Check enclosed \$ _____.

Charge to:

☐ VISA ☐ MasterCard ☐ American Express

Account No. _____ Exp. Date _____

Signature _____ Date _____

Name _____

Title _____

Company _____

Address _____

City/State/Zip _____

Country _____

Phone (____) _____ FAX (____) _____

Street address required.

Title	Price	Qty.	Subtotal
UNIX, Quick!	\$30		
The Dictionary of Standard C	\$24		
Mastering Standard C — A Self-Paced Training Course in Modern C	\$40		
Portability and the C Language	\$19		
PA residents add 6% sales tax			
UPS shipping: In the U.S., \$4 for the first book, \$1 for each additional book. Outside the U.S., please call (215) 957-4265 for shipping information.			
TOTAL			

Mail to: Professional Press Books, 101 Witmer Road, P.O. Box 446, Horsham, PA 19044

**December 8-12, 1991
Washington D.C. Convention Center**

**The ONLY UNIX
Conference and
Exhibition Dedicated
Exclusively to the World's
Largest UNIX Marketplace**

**The Federal Government
and its Suppliers**

FedUNIX'91 Distinguished UNIX Courses

December 10-12, 1991

The 20 most popular and authoritative full-day courses
from national UNIX, Graphics, and Security Conferences.
100% MONEY BACK GUARANTEE

Federal Open Systems Conference (FOSC'91)

December 10-11, 1991

- ★ DoD's CIM Program: The Biggest Open Systems Initiative
Keynote by Dr. Paul Strassmann, DoD
- ★ Selecting The Right Standards For Open Systems
- ★ Downsizing: Moving Applications from Proprietary
Systems To Open Systems

Plus 4 & 5 Day Hands-On Courses

January and March 1992

The X-Window System, UNIX Fundamentals, and C Programming
Hands-on courses taught by some of America's best Instructors.

Free FedUNIX Conference Sessions

December 10-11, 1991

Answers to the most commonly asked questions about UNIX—
Vendor Comparisons. *Keynotes by SCO & AT&T Top Executives*

Free Network Computing Shootouts

December 11, 1991

What networking hardware and software is best for your application.
Keynote by Banyan Systems & Novell Top Executives

**The Only Exhibition Of UNIX and Open
Systems Products for the Federal Marketplace**

December 10-11, 1991

All the major players in open systems are coming back: SCO, SUN,
UNIX International, Open Software Foundation, IBM, Data General,
Hewlett Packard, NCD plus many more vendors.

MOTIF'91

The International Motif User Meeting

Co-Sponsored by The International Motif User Group

December 8-10, 1991

Motif Users from more than 20 countries are planning to meet
in Washington, during the FedUNIX'91 Conference Week.
Refereed papers in over 30 categories. A special table-top
exhibition of software and hardware for X Windows and Motif.

VISION'91

**The Annual Meeting of
Computer Graphics Users From Major
Corporations and Government Agencies**

December 11-12, 1991

The Most Popular Sessions from NCGA & Siggraph.

Register To Attend Today, For Details call

(301) 229-1062

Return this form to:

**FedUNIX'91,
4610 Tournay Road, Bethesda, MD 20816
or FAX to: (301) 963-5518**

☐ I would like additional information on FedUNIX'91/
Motif'91/VISION'91. Send me your Attendance Brochure.

☐ Please register me for the FedUNIX'91 FREE Conference
Sessions and Exhibition.

Name _____

Title _____

Organization _____

Address _____

City _____ State _____ Zip _____

Telephone _____

kiNET IS YOUR BRIDGE TO THE FUTURE.

"Users migrating to Unix from VMS™ do not have to learn any new commands with kiNET™."

-Digital Review Labs, 1/28/91

kiNET is the most complete DEC connectivity product available today.

A most complete DEC/Unix connectivity product, kiNET provides VT340 emulation from Pericom Software, DEC Windows over DECnet, high speed and CPU efficient file transfer, LAT Terminal and Print Services, and file backup to your VAX tape drives, complete Network Management and MOP facilities.

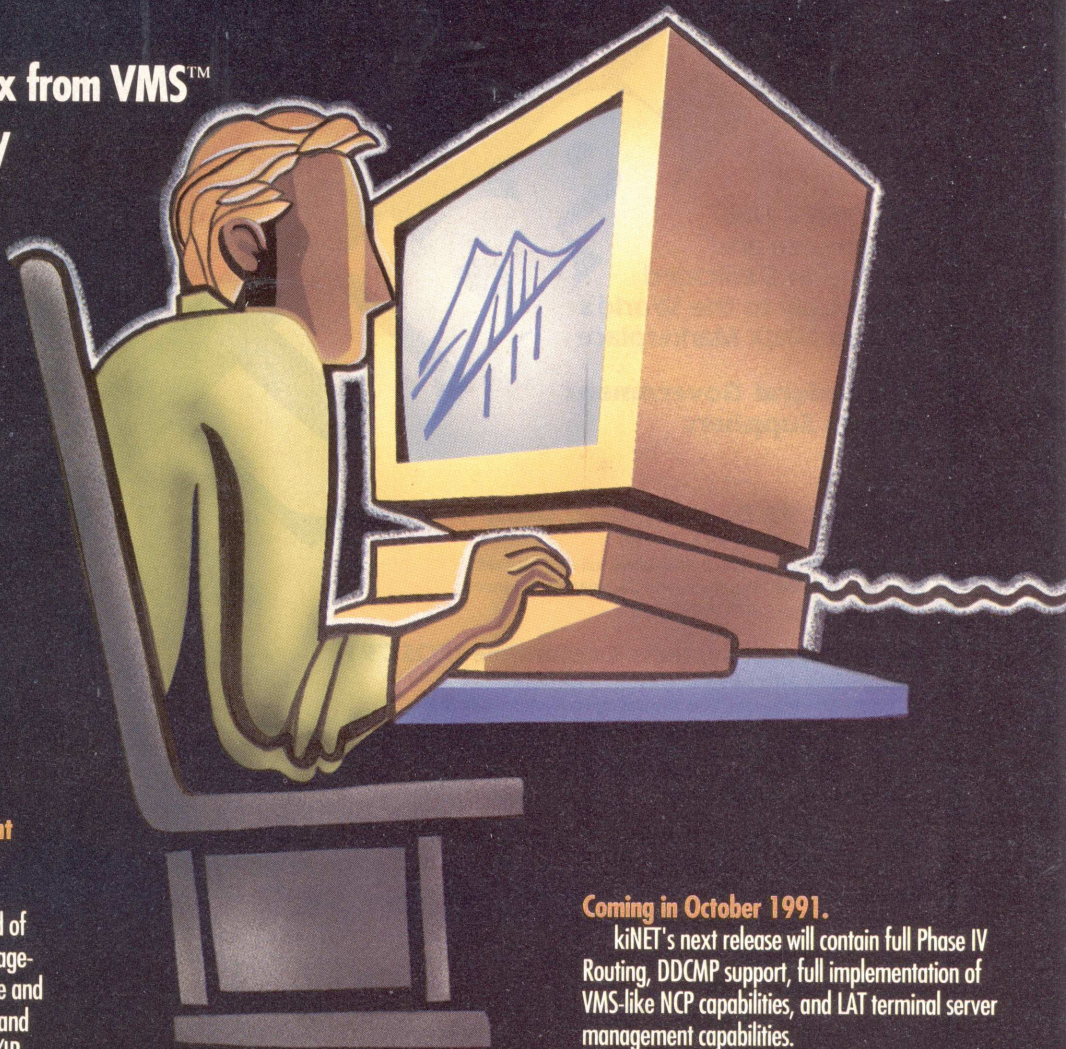
kiNET provides the comprehensive power of DECnet Network Management for all your Unix systems.

You can use your complete and existing DECnet Network Management facilities instead of relying on TCP/IP's Inadequate Network Management. If you are looking for a way to integrate and network manage your Unix and DEC systems and do not want to suffer the inadequacies of TCP/IP, use kiNET.

Not only does kiNET provide complete support for network management protocols including NCP and MOP capabilities, kiNET is also available on 28 different vendor platforms including IBM OS/2 and RISC System 6000, SGI, Mips, Sun 3 and 4, Sequent, Star Technology, Modcomp, Hewlett Packard 9000 series, Cray Research ELC, Harris, Tandem, Alliant and Data General's AViiON and MV Series.

OSI migration path is available with kiNET.

Those DECnet sites looking for a migration path to OSI for their DEC and Unix systems, look no further. Our kiNET release will contain OSI capabilities by mid-1992 and at no additional charge.



Easy to use and install.

kiNET has the distinct advantage of letting VMS users and system managers become immediately productive on their Unix systems.

ki Research's kiNET installation is menu-driven and extremely easy to complete. No Unix expertise or previous DECnet/LAT experience is required.

Versatile, too, kiNET Saves You Time and Money.

kiNET allows full utilization of your current VAX systems and LAT Terminal Servers without requiring you to invest substantially more money for VAX TCP/IP software or for TCP/IP training for System Managers or multiple protocol terminal servers.

Coming in October 1991.

kiNET's next release will contain full Phase IV Routing, DDCMP support, full implementation of VMS-like NCP capabilities, and LAT terminal server management capabilities.

Helpful and courteous support.

Our 24-hour, seven-day-a-week, half-hour support response is both helpful and courteous.

Please call for more information and a no-obligation 30-day free trial of kiNET.



kiNET is a trademark of ki Research, Inc.
DEC, DEC Windows, DDCMP, LAT, Ultrix, VMS and VAX are trademarks of Digital Equipment Corp.

800-544-8352 or 301-553-0181

THE FUTURE IS NOW.

DEC's New Strategy

Offerings Reflect Deeper Commitment To Open Systems

UNIX Today!

BY MITCH WAGNER
Maynard, Mass.—Digital Equipment Corp. last week rolled out a huge number of new networking products, offered DECnet source code for the first time and revealed plans to license its multivendor Network Application Support (NAS) technology.

These announcements, combined with the release of an aggressive effort to port software to Hewlett-Packard, IBM and DEC's recent state-of-the-art VAX architecture.

Sages: Last week's news shows that DEC is pushing its traditionally proprietary products into the open systems arena as hard as it is pushing itself to business practices and standards into its products. "I think it's great," managed Salomon Bros. analyst May 31. "It's a move of optimization into a service."

The undersigned Vendors and End Users acknowledge and are encouraged by DEC's most recent announcements in regard to providing DECnet as a defacto/non-standard protocol across UNIX platforms by making their Ultrix DECnet "End-Node" code available.

We think ki Research has already accomplished what DEC states it intends to do and much more. In our minds, ki Research's kiNET is the defacto DEC connectivity standard providing not only "Full-Function" DECnet but LAT and MOP capabilities as well.

We have selected kiNET as the defacto DEC connectivity standard for our UNIX systems because:

- kiNET's VMS-like command line interface and simplified program interface are identical across 28 vendors and 60 plus hardware platforms.
- The kiNET product is fully supported by ki Research, a company specializing in DEC Connectivity for UNIX platforms.
- ki Research offers and delivers 24 hour support service 7 days a week world-wide.
- The kiNET product is continually enhanced and improved. The latest enhancements will include DECnet Phase IV Routing, LAT Application Services, a complete NCP implementation and LAT Terminal Server Management.
- kiNET's two year old LAT Host Services is the most mature LAT Host Service Product for UNIX Systems on the market today.

We, the undersigned, are proud to offer and use kiNET as the defacto DEC Connectivity Product supporting "Full-Function" DECnet, LAT and MOP capabilities.

ki
research

* All signatures are on file.

- Alvise Bragailla, President, TXT
- Shari Cohen, MODCOMP
- Neil Kleeman, Solution Systems, Inc.
- Paul Smith, Pyramid Equipment
- Max Trist, Managing Dir., Haltek
- Orville Aldridge, Net Admin., Sask Oil
- Pablo Arias, President, Pyramid Equipment
- Chris Arndt-Kohlway, Aerojet Propulsion Div.
- Paul Hahn, Prod. Mgr., Sequent Computer Sys., Inc.

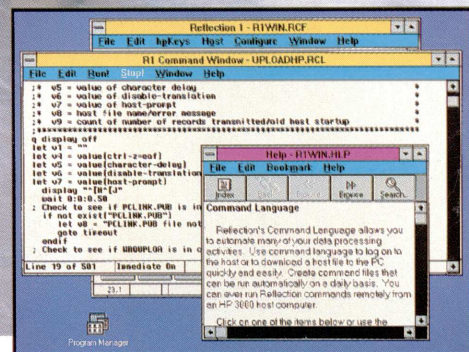
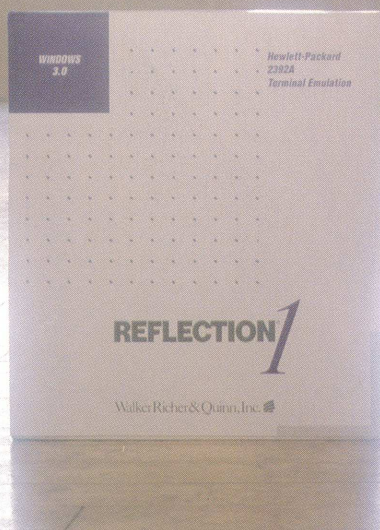
- Klaus Landberg, Dir., OS Development, Alliant
- Anthony Malpes, Managing Dir., Communic8
- Carmon Marchionni, VP, Marketing, MODCOMP
- Craig Moore, Marketing, Star Technology
- David Robinson, Marketing Mgr., Haltek
- Mike Schepers, WEC, System Manager
- Raj Sharman, Network Mgr., LSU-SVM
- Ken Jackson, Development Mgr., Harris
- Channing Lai, Director, Custom Products, Alliant



kiNET is a trademark of ki Research, Inc.
DEC, DEC Windows, DDCMP, LAT, Ultrix, VMS and VAX are trademarks of Digital Equipment Corp.

800-544-8352 or 301-553-0181

CIRCLE 466 ON READER CARD



Introducing Reflection® 1 for Windows 3.0

Another great performer.

You expect the best from a star. Here's a new performance that won't disappoint you. Reflection® 1 for Microsoft Windows 3.0 makes PC-to-host sessions an enlightening new experience.

Enjoy the elegant simplicity of pull down menus and the ease of point-and-click with a mouse. Put multiple sessions in multiple windows. Or simultaneously run PC applications and host sessions side by side.

Lift data directly from a host session window and place it neatly in your PC applications

for a stunning presentation. Reflection's screen fonts and windows are fully scaleable for easy reading, always. You'll agree Reflection 1 for Windows is uncommonly versatile.

Reflection delivers an inspired performance in Windows. Use all the features and accurate emulation you've come to expect from Reflection: command language, file transfer, network communication, while taking full advantage of the Windows operating environment and graphical user interface.

Reflection 1 for Windows gives you a new

perspective to make the time you spend with computers more productive. See for yourself.

Call us today.

1-800-92 NETWORK

REFLECTION
SERIES
SOFTWARE

Walker Richer & Quinn, Inc.

CIRCLE 145 ON READER CARD